Library Trends

Current Trends in Reference Services

MARGARET KNOX GOGGIN, *Issue Editor*

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Introduction

MARGARET KNOX GOGGIN

"TODAY, WE SHALL APPROACH the field of Library Science from the side of readers."[1] This sentence, borrowed from S. R. Ranganathan, seems most appropriate to begin an issue of *Library Trends* on reference service, for it is, indeed, "from the side of readers" that reference librarians work.

Traditionally, reference work was considered primarily as the answering of reference questions from a selected group of volumes designated as "reference books." Today, the reference librarian still retains his question-answering duties, but with the entire library collection and extra-library sources as his world. In addition, the scope of the reference function has widened to include a variety of associated activities: the bibliographic function, the instructional role, the guidance activities, the promotional aspects, the appraisal and selection of materials and, finally, the supervision or management of the reference department. All these are included in the term "reference service."[2-3]

Current trends in reference appear to be the results of three explosions: population, publication, and learning. All three are here today in truly dynamic force with warning signals indicating an even greater impact in the future.

It is the population explosion which has brought an overflow number of students into our public schools. Spilling out beyond the library facilities of the school systems to the public libraries, school children form a major class of patrons in the public libraries of today, according to Katharine G. Harris. Everett T. Moore points out the growing trend for separate undergraduate and graduate libraries to accommodate the numbers of students in universities.

Along with the masses of people, there is the mass of library materials—books, periodicals, reports, documents, non-book materials.

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Realizing that one reference librarian can no longer encompass the world of learning and interpret the entire output of the world's publishing houses to a varied and growing clientele, librarians have developed divisional reading rooms in university libraries and subject departments in public libraries. Subject specialists have been recruited for reference work in these specialized service areas. In addition, special libraries have been established in increasing numbers to handle specialized needs and interests.

Moore discusses the development of specialization in university libraries not only in the organization of reference service but also in the organization of materials such as documents and research reports. In the special library, Mary Edna Anders notes, there is a growing need for ever more specialized indexes, data files, and abstracting services.

Within this age of the publication explosion, reference librarians have greater responsibility for the development of the entire collection, a responsibility which requires subject specialization among the staff in order that wise selections be made. Librarians, faced with the problems of evaluation and selection, are finding reviewing media inadequate for their needs, according to Margaret Knox Goggin and Lillian Seaberg. While the number of publications is increasing rapidly, there are fewer reviews of reference books, even among the costly subscription books, and reviews tend to be uncritical.

To handle the mass of possible reference material, the librarian performing the reference function must look forward to some type of automation. Claire Schultz presents a graphic description of the use of the peek-a-boo card and machine retrieval systems available for the reference function, and looks to the future as MEDLARS points the way for automating reference work through specially designed computer systems.

The learning explosion—the impact of the age of science and the competition for college entrance, for college performance, and for world eminence in space and non-space achievements—appears to be a major factor in the increase in the extensive and intensive use of all library facilities. Anders attributes the rapid growth of special libraries to the mushrooming of research activities with the attendent billions of dollars available for scientific and technological studies.

The search for knowledge on all levels has made necessary library service beyond the ability of the local community's resources. For book and informational needs, regional reference service appears to

be a new and significant answer. Warren Haas describes the regional reference systems of today and calls for critical evaluation of their operations.

Related to regional reference service, and another area of reference work affected by all three "explosions," is interlibrary loans. Michael M. Reynolds traces the history of lending among libraries, highlighting the problems of increased dependence on the large research library, the expanded use of research libraries by business and industry, and the needs of every community, in today's knowledge-centered culture, for books beyond the community's powers to provide.

"Reference service is so greatly a matter of variables and intangibles that attempts to evaluate the department and its operations are rather baffling." [4] Samuel Rothstein tackles this problem of measurement and evaluation about which so much has been written but so little attempted. His conclusion should jolt reference librarians to action, for he warns that "reference libraries, in failing to provide the means for accurate judgment on their place and contribution in library service, run the serious risk of having their work undervalued or ignored."

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Reference Service in Academic and Research Libraries

EVERETT T. MOORE

QUESTIONS OF SPECIALIZATION or non-specialization and of centralization or decentralization have dominated the thinking of reference librarians in academic and research libraries during the past several decades just as they have occupied the attention of general library administrators. Not every reference librarian has consciously faced these questions, of course, nor has had the opportunity to answer them; but in ways both seen and unseen, the questions have pervaded their thoughts. And, although the staffing of the smallest college library does not permit thoroughgoing specialization or decentralization in the organization of its services, even there the handling of specialized materials and the organizing of collections in subject fields will most likely call on particular talents of reference librarians.

In 1949, Frances Cheney looked carefully into the question of the future of the general reference librarian in her study of reference departments of all Southern college and university libraries holding 100,000 or more volumes.[1] She visited every library on which she reported. Although in a few of the larger schools, divisional reading rooms were beginning to appear, she found, in the main, reference service continued to be organized around a general reference department. The general reference librarian, she concluded, was not on the way out, although there would be more subject specialists as graduate work continued to expand and develop; certainly, she believed, in the smaller institutions they will be the only reference librarians. Her concern was that the general reference librarian not become completely involved with tasks that might better be performed by other staff members: that they not spend too much time on handling interlibrary loans, checking lists, spoon-feeding students, and so forth. Her

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sensible observations are generally applicable to colleges and universities in all parts of the United States.

The question of specialization concerns reference librarians wherever programs of teaching and research are sufficiently broad and deep to place real demands on the "working" members of the library staff. Teaching methods of the college faculty help to determine the kind of library services that can be offered. The best intentions of librarians to extend their services actively to students are ineffectual if the students are not stimulated to explore the library's resources for themselves.

It is the *nature* of the materials themselves that demands the utmost resourcefulness of reference librarians in making them useful to students. This is most apparent in the fields of science and technology and in the social sciences, in which the production of books, periodicals, monographic studies, reports, and memoranda is great and is growing greater. Their variety is staggering. Adequate listing and indexing of many publications are not being accomplished, and bibliographies in subject fields must constantly be supplemented by resourceful assistance from reference librarians.

Organization of college and university libraries along divisional lines has offered the readiest opportunities to provide specialized reference services. As developed mainly in the 1940's and 1950's, this has meant that in one form or another of the humanities-social science-science and technology organization of library services, reference work has been one of the functional aspects of each division. In hurrying to join the trend toward divisionalism, a number of academic libraries disbanded their reference departments and declared that assistance to readers could be more efficiently and effectively provided at decentralized points in the library.

The divisional plan has been embraced by large and small libraries, in both colleges and universities.[2] In its most genuine form the scheme was fashioned to provide for real economies in facilities and services, to permit an orderly development and extension of services for broad subject areas, and to head off immoderate multiplication of separate library facilities in many subject fields. The audacious library plans developed by Ralph Ellsworth at the University of Colorado and by Henry B. Van Hoesen at Brown University, both in the late 1930's, were the prototypes of this organizational pattern, and the general scheme still exerts powerful influence over library planners.[3]

In some cases, a too imitative adaptation of the pattern has resulted

in a general weakening of reference services and sometimes in the virtual elimination of effective reference work. Uncritical imitators of the plan should, of course, study the recent modifications in the organization of services both at Colorado and Brown to meet changing needs at those universities.[4, 5]

Where a divisional plan has taken the form of a controlled decentralization of library services in specialized fields of the physical sciences and technology, results have often been gratifying, in enabling specialist reference librarians to serve an immediate clientele. "Reference" librarians may, indeed, have a variety of responsibilities as librarians in branch or divisional libraries in such specialized fields. It is here that the scheme seems to take its most appropriate and effective form. The larger the divisional library the greater the likelihood of the development of a competent reference staff; but quite without regard to staff alone, librarians in such "special" libraries are likely to develop reference capabilities through their work in the selection and organization of materials, as well as through constant close contact with the users of their collections. In a sensitive librarian, this goes far toward developing a sympathetic understanding of the needs of students and scholars in their specialized fields.

Attempts have been made to apply the same techniques of all-around responsibility to the staffing of more general library services—in divisions for the humanities and the social sciences, and sometimes for the practical and fine arts. The organization of services at the University of Nebraska Library is the most notable example of a thoroughgoing plan for decentralizing and regrouping of library functions.[6] The scheme has been found to work with great success in this relatively "uncomplicated" university, in which advanced graduate programs in many fields and in great coordinate "area" programs have not placed such extensive and specialized demands on the library as are experienced in a number of other universities. The plan has undoubtedly resulted in a broadening of the responsibilities of both public service and technical processes librarians. One of its objectives has been to give librarians engaged in reference work a better sense for the functions of book selection, acquisition, cataloging, and classification. Benefits have accrued from both directions, so that the technical processes personnel increase their effectiveness through their public service contacts, and vice versa.

In some applications of such schemes, however, the potential weaknesses of the divisional plan become most apparent. When complete

decentralization of reference services has been the objective, the result is likely to be an utter dispersal of reference responsibility.[7] Lack of a central reference service, situated close to the general card catalog of the library, where general information and guidance in the use of all of the library's resources may be provided, is an immediate cause of confusion for the student. Often a token information center, with a few standard reference books at hand, will be set up as a substitute for a general reference facility; this is usually done only after the absence of a general service becomes intolerable.

In a complete divisional plan in a general library, such divisions as humanities, social sciences, fine arts, education, physical sciences, and life sciences may be housed in quite separate facilities, perhaps even on separate floors. The problems of dividing a collection of reference and bibliographical works according to these fields is particularly difficult, except through wide and expensive duplication. The problem alone of access to the general catalog (assuming that most libraries will not yet have been able to reproduce it conveniently in book form) will create a completely inefficient arrangement of facilities. Yet this is the situation that more than one college or university library has built itself into in recent years, believing that it was achieving an advanced pattern of service.

Organization of general services has often been adapted to a building layout presumed to be desirable and "functional," rather than permitting the organization itself to determine the design of the building. Reconversion to a plan of centralized reference service can be difficult, or impossible, if the building seems to dictate a decentralized scheme.

More universal than this particular question of centralization or decentralization of services has been the question of how to organize effectively the greatly varied and specialized materials in a number of fields, particularly in the social sciences. Government publications, and all of those other document publications of international organizations and specialized agencies which appear under some kind of "official" auspices, have presented librarians with the greatest challenge of all in the organization of complicated and wide-ranging materials for use. No matter where the ultimate responsibilities for their organization have been placed in the library administrative scheme, the responsibilities for interpreting their bibliographic organization and assisting readers in their use have inevitably fallen to reference librarians.

One of the boldest steps taken to meet the problem of ever-increasing document publications in the research library was the establishment of the documents division in the Reference Department of the University of California Library, at Berkeley, in 1938, by Jerome K. Wilcox.[8] The scheme grew out of the publishing projects in which Mr. Wilcox had undertaken to list and describe the organization of government publications of the New Deal. It quickly became a useful and essential unit in the University Library at Berkeley, and ultimately was established as a separate department. The documents program, as it has developed on that campus, and, similarly, at the younger campus of the University at Los Angeles embraces the functions of acquisition, initial brief processing of materials, and reference service in the use of publications. Benefits of quick organization of materials for use, of the provision of expert specialized reference assistance, and of economical and efficient housing of the materials have all been pointed to by librarians of both campuses as evidence of success for this scheme.

Initial criticisms of this method of document organization have included objections to segregating collections according to form rather than subject content, to a cultivation of over-specialization by librarians who work with them, and to deficiencies in cataloging resulting from brief methods of recording acquisitions. Each library has had to decide for itself whether to adopt such a scheme, taking into account considerations of scope and kinds of service offered in one or a number of libraries within the institution, and other matters of basic economy. The specialized documents organization is, of course, appropriate only to the larger research-oriented institution, not to the general or liberal arts college.

Not every university library has rushed to establish a special service for documents. On the contrary, the scheme has been adopted completely in only a small number of universities. For quite sound reasons, many libraries have kept acquisitions and processing functions for documents in the departments generally responsible for those functions, and reference assistance has been provided through whatever pattern—centralized or divisionalized—the library has operated. Strong arguments have always been made for keeping documents together with other kinds of materials, according to subject. At Nebraska, for example, all aspects of the government publications program are integrated with the Library's divisionalized scheme for public services and technical processes, not under separate control.[9]

In recent years, however, an increasing number of university li-

braries have shown renewed interest in establishing some kind of specialized documents service.[10] The enormous growth in the publishing programs of all governments and of international organizations and related bodies, the establishment by the federal government of such special services as the twelve Regional Technical Reports Centers (established by the United States Office of Technical Services), and the greatly increased use of document materials in study and research in the social sciences have necessitated a closer look at the question of organizing such materials.

George Caldwell, surveying in 1958 the organization of government publications in American university libraries,[11] found that of the twenty-three member libraries of the Association of Research Libraries which answered his questionnaire, eight maintained completely separate collections, four had predominantly separate collections, six handled most government publications like other publications, and five had mixed systems.

In the light of present needs, serious questions have lately arisen as to the adequacy of even this type of separate organization and service. The doubts are not about the necessity for the plan itself, but rather as to whether the scheme is being applied too narrowly and exclusively to the materials that can be defined as publications of "official" bodies. What of the vast quantity of "non-official" publications issued by semi-public or government-affiliated organizations, the reports and papers of research and development institutions, of institutes and laboratories, of universities and schools and academies? Some of them appear in series, perhaps even more are in ephemeral or insubstantial pamphlet form. All require special attention and skill in acquiring and organizing them for use.[12]

In some universities the specialists in political science and government have developed supplementary research centers in which many of these materials have been acquired and collected. Sometimes this activity has been carried on quite outside and beyond the library's organization. It is much to the credit of teachers and researchers in these fields that intensive collecting of such materials has been pursued —and not always to the credit of librarians who have been slow to find a place for this kind of special research service within their library organizations. Sooner or later, the skills of librarians have been employed to organize the materials which these bureaus and institutes have acquired. Often, however, this has happened too late to assure full integration of the special service with general library services.

A broader view of the opportunities that libraries have, to relate

this kind of special library function more closely to traditional services, is now being taken by some library administrators. And just as reference librarians have been called on to organize and administer such services as those with government publications, they will be needed to devise more efficient ways of organizing the special materials in the social sciences and to work out better ways to integrate them with documents.

Reference librarians are, therefore, increasingly engaged in a variety of specialized functions and responsibilities. With these responsibilities must necessarily go greater responsibility for collection building and selection of materials in specialized fields. Whatever organization of services in academic and research libraries brings these activities more fully into the area of reference work is likely to be a healthy one, for it combines the reference librarian's active functions of interpreting the library's services and collections with responsibilities for developing and extending its resources.

A challenging proposal for extending the scope of reference service was made by Samuel Rothstein, in 1960, when he addressed the Reference Services Division of the ALA.[13] He urged that reference librarians overcome their inhibitions against the *direct* provision of information (not just suggestion or instruction as to where or how the patron might find it for himself), and that they recognize information service as a principal and worthy obligation of the library. This "maximum" rather than "minimum" theory of reference work, he said, ". . . takes its stand on the twin tenets of faith and efficiency. Information, it contends, is of crucial concern to many people. For businessmen, legislators, researchers and scholars, it is more important that they have it than they learn how to acquire it, and extensive library assistance is therefore economical and worthwhile in any case where the time saved by the client is more valuable than the time spent by the librarian. The chemist no longer blows his own glassware and the doctor no longer takes temperatures; why should they not have the librarian conduct literature searches for them?" [14]

Rothstein's proposal holds a good deal of interest to all academic libraries in which specialized reference work is a significant part of their services. It is, of course, an extension of his concept of "amplified service" in special librarianship which he described in his study on *The Development of Reference Services,* published in 1955.[15] It was ". . . likely and proper," Rothstein thought, "that the librarians [in universities] should find methods and support for a program of ex-

tensive assistance to research. The practical problems had not yet been worked out, but the case for an expanded reference service to university research personnel was plausible enough to indicate that the future development of reference service in university libraries would lie in the direction of greater responsibilities for the reference librarian." [16]

Specialization in a somewhat different sense enters into considerations of library services to undergraduates in the great universities which have extensive graduate programs. With the development since World War II of separate undergraduate or college libraries in a number of universities, duplication of both books and services has been undertaken, sometimes to considerable breadth and depth. Fears have often been expressed that segregation of library services to undergraduates is unwise because the students are thereby consigned to a second-class library status and are deprived of the advantages of exposure to the great resources of a general university library. Reference service to undergraduates, it is felt, from this viewpoint, will be less effective when it is supported by the relatively limited resources of an undergraduate library reference collection rather than by the full-scale reference and bibliography collection of a central university library.

The arguments *for* the separate services usually point out that provision of the undergraduate facility within the university is simply a means for giving the undergraduate something of the quality and convenience of a good college library—quite the equal of some of the better liberal arts college libraries—which is more appropriate to his use than the large and complicated university library in which he must compete for services and books with great numbers of graduate students, faculty members, and researchers, often without the advantage of going directly to the books on the shelves. Also generally accepted is the view that undergraduates, although they are furnished excellent facilities and collections of their own, should not be excluded from the general research library when they have need to use its resources. If such a scheme can be made to work successfully, the undergraduate then should enjoy the best of two worlds of library service. (He would not, presumably, have all of the advantages of the graduate student in the research library, as, for example, direct access to all book and periodical collections; the advantages to the graduate would thereby not be cancelled out.)

As for reference services in the undergraduate library itself, patterns

and precedents are not clear, for in many cases, over-all patterns of service are yet to be developed. At Harvard, where doubt has long been expressed about the need for extensive reference service to students, establishment of the Lamont Library for undergraduates has brought a new recognition of the appropriateness of direct assistance to students in the use of specialized materials. As reported by Edward P. Leavitt,[17] reference assistants there, for example, offer aid to undergraduates working on their required research papers for the Government 130 course, beginning with an orientation in the use of the *Monthly Catalog of U.S. Government Publications*, the *Government Organization Manual*, *Congressional Directory*, *Congressional Record*, *Supreme Court Reports*, and *United Nations Yearbooks*. "These constitute a beginning," he says, "and the reference assistant can refer them for other specific materials to Widener Library, the Law School Library, or the Library of the Graduate School of Public Administration." [18]

Even more useful as an example of the kind of reference service the larger universities may find appropriate for their great numbers of undergraduates is that at the University of Michigan, in Ann Arbor. There, in the most advanced facility of its kind in the country, the Undergraduate Library provides full-scale reference service as one of its major functions.[19]

With the development of the undergraduate library idea, a renewed hope has grown among reference librarians for a better solution than has yet been found in the large universities to the problem of instructing students in the use of books and libraries. Here, the liberal arts college librarians can perhaps offer the greatest assistance to the university undergraduate librarians in demonstrating how the student may be given a better insight into methods of study and research.

Particularly with students in honors programs such as many colleges and universities are undertaking, reference librarians should find themselves working closely and responsibly with teaching staffs in providing for the library needs of the ablest and most imaginative students. Librarians will perhaps be the ones to offer special instruction to these students in the most fruitful use of bibliographical resources. Library instruction, in this sense, will be much more than giving lessons in the use of the card catalog, periodical indexes, and encyclopedias—all of which should be pretty well mastered before students come to college.

Another major concern of reference librarians in academic and

research libraries—of supplementing library resources through interlibrary cooperation—requires only passing mention here, as it is treated more fully in another chapter of this issue. Interlibrary loan service has long been one of the specialized functions of reference librarians; whether or not it is their immediate responsibility, it does require their skills and insights if the service is to be more than an extended circulation function. Now that there is stiff competition for research materials among colleges and universities and other research institutions, and it is no longer easy to borrow books and periodicals from each other, libraries are challenged to find new means for supplementing their resources. Reference librarians are looking to new opportunities for effecting wider exchange of information about library resources, through published catalogs or centralized listings, and perhaps for rapid transmission of materials.

Those who can grasp the meaning of such opportunities and can adapt library practices and services to take full advantage of them will play useful roles in tomorrow's libraries.

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Reference Service in Public Libraries

KATHARINE G. HARRIS

THE DEVELOPMENT OF PUBLIC LIBRARY reference service in the United States in this century is a logical outgrowth of the intellectual ferment that has taken place in this country, the tremendous expansion of the fields of knowledge, and the basic democratic conviction that everyone has the right of access to all knowledge. Thus librarians have changed from custodians of books, to people dedicated to making the information in these books available to all. The emergence of the public library as the information center for the community is the logical development of this change. More people in our society have more need for information than ever before —more adults are continuing their education throughout their lifetime, they have more specialized skills and more leisure time, and through radio and television are stimulated to more interest in current affairs. These people are turning to the public library for specialized reference service, and the information they need is not only in books, periodicals, documents, films, and recordings, but in microform and in computers. The responsibility that this places on library staffs is a heavy one and one that has developed in a short span of time.

In the last quarter of the 19th century, this newer concept of librarianship was beginning to take shape. William Poole at the Boston Athenaeum was producing his index to periodicals to make information more available, and Justin Winsor at the Boston Public Library was responsible for the first annotated catalog of an American library to help the ordinary reader choose the books he wanted. Samuel S. Green at the Worcester Free Public Library in 1876 wrote his now famous article for the *Library Journal* on the desirableness of establishing personal intercourse and relations between librarians and readers in public libraries, in which he stressed the fact that the librarian should give personal attention to the patron's needs. "When

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scholars and persons of high social position come to a library, they have confidence enough, in regard to the cordiality of their reception, to make known their wishes without timidity or reserve. Modest men in the humbler walks of life, and well-trained boys and girls, need encouragement before they become ready to say freely what they want." [1] William Fletcher, writing in 1894 in *Public Libraries in America* said, "Every public library should be a library of reference. . . . Important as it may be in many communities, the supplying of books for home-reading must not be regarded as the only function of the library." [2] By 1893 specialized reference workers had been appointed in Boston, Providence, Milwaukee, Detroit, Newark, Chicago, St. Louis, and Brooklyn.

During this period, too, the need was recognized for reference rooms to house the growing reference collections, and most of the medium-sized and larger libraries built at the end of the century provided such a room separate from the general reading rooms. The policy of free access to reference books was also established during this period. William Fletcher wrote, ". . . there is a great advantage in the open shelves, in that readers having free access to these books become better acquainted with them, and . . . acquire that facility in consulting reference books which is essential to success in any literary work." [3]

Library literature of the period before 1900 reflects many of the problems and ideas familiar to us today. In 1881, the constant pressure by readers to take reference books home was noted by the Chicago Public Library authorities and they were taking a strong stand against it. In 1890 a method of recording use of reference books was reported in the *Library Journal*—"On the top edge of each volume is laid a small narrow ticket . . ." which was to be dropped into a locked box in front of the case when the book was used.[4]

In 1891, "reference work" appeared for the first time in the index to the *Library Journal*; W. A. Bardwell describing reference work at the Brooklyn Public Library, said that the New York *World* issued a series of 100 prize questions. "The search was exhaustive, and the attendants were nearly exhausted before it ended." [5] Is this the first record of a quiz question problem? W. E. Foster, at a meeting of the Massachusetts Library Club in 1894, discussed the information desk at the Providence Public Library, located so ". . . that it necessarily catches the eye of every reader on entering. . . ." [6] Again, the foresighted Samuel Green in speeches and articles laid down the principles for

interlibrary loan in reference work so that everybody needing information could get it.[7]

Charles Davidson, Inspector of the University of the State of New York, in a speech at the American Library Association Conference of 1898 at Chautauqua, New York, outlined a plan of regional reference service as we conceive of it today. "There should be such connection between our large libraries and the small ones that the investigator in a small town may turn to his librarian, have his question passed on, and receive from the large library the full bibliography bearing upon his subject. To this should be added also an exchange of books far broader and more liberal than obtains at present. . . . it is not true that the same student working in a little library in a small town can command all works in any library in the country. This should be possible and practicable." [8] Thus it is apparent that by the end of the century many of the concepts of public library reference service had emerged.

After the turn of the century reference service in metropolitan libraries expanded in a rather straightforward course. Library administrators gave the work departmental status; they added steadily to their reference staffs; they brought at least limited reference service to branch libraries; and they extended their assistance to mail and telephone inquiries. Samuel Rothstein pointed out that the reference staff of the Detroit Public Library doubled in twelve years from three in 1902 to six in 1914, which he felt was typical of other large libraries.[9]

On the other hand, in many small communities with small library staffs only the most elementary reference service is being given at the present time. Even the first essential of having special reference staffs has not been achieved widely. Janice Glover reported in the *Library Journal* in 1955 on a questionnaire sent to the state library agency in 48 states asking how many public libraries in their state had separate reference departments staffed by one or more full time reference librarians.[10] The replies ranged from none in Nevada, North Dakota, Vermont, and Wyoming, to an estimated 40 in Michigan; California reported 34; Massachusetts, 27; New York, 20; Ohio, 23 (estimated); Pennsylvania, 20; and Wisconsin, 21. A checking in the latest (1962) *American Library Directory* for communities which list reference departments, reveals that there apparently has been little change. Wyoming listed one, a county library, but none were listed for Vermont, North Dakota, or Nevada. The earlier estimate for Michigan seems high since only 29 out of a total of 326 public libraries

show special reference departments in the current directory. As would be expected, many more libraries show special children's service than reference. Glover further reported that a comparatively few had departmentalized reference service. She says there was "almost a hostility" toward promoting more departmentalized reference collections, and she concluded that "there seems little hope at present for growth of the separate reference department in public libraries." [11]

The nationwide survey of *Reference Service in American Public Libraries Serving Populations of 10,000 or more*,[12] conducted by the Reference Section of the Public Libraries Division of A.L.A. in 1956 and partially financed by the H. W. Wilson Company, shows some of the limitations of the reference service being provided. In this survey the replies of libraries serving less than 10,000 people were omitted, although 73 per cent of the libraries in the U.S. fall in this figure. However, since these small libraries serve only 10 per cent of the population, the survey results represent reference service being given to 90 per cent of the American public. The totals probably indicate better service than was actually provided since a larger proportion of large libraries reported than of small. The results show that some information and reference service is provided by almost all public libraries regardless of size and that 58.5 per cent are providing research (this term is undefined but ". . . may include assistance given to students in the preparation of term papers" [13]) in this proportion: small, 48.6 per cent; medium, 61.5 per cent; and large, 75.5 per cent.

The Biennial Survey of Education, 1954-56, which is the last one of this series published, sought to obtain statistics on reference use for its *Statistics of Public Libraries: 1955-56.* Replies to its request to "include all transactions in which library resources for reference, research, and advisory service have been made available through direct assistance of a staff member" [14] were received from only 1,461 libraries or 23.4 per cent of the 6,249 reporting. The largest number was reported for public library systems serving populations of 100,000 and over and was 72.8 per cent of the total 19,355,000 reference questions answered.[15]

The Reference Survey found that in the small libraries 68 per cent of the reference work is centered in the circulation department, and in three-fourths of them reference service is directly the responsibility of the chief librarian. Only 8 per cent have a head of reference. In the medium-sized libraries, one-half have reference departments, and 40

per cent give reference service in branch libraries. In half of these libraries reference service is under the head librarian while 38.8 per cent have a reference department head.

In the large libraries 75 per cent provide reference service through reference departments and branch libraries. However, only 25 per cent reported special subject departments. In 63 per cent of these libraries the reference responsibility rests with the head of the reference department, and in only 17.4 per cent is it left to the head librarian.[16]

While these statistics point up the limitations of reference work in the smaller libraries, the ten year survey, 1946-1956, made by Sarah R. Reed of public library reference services in twenty-five libraries,[17] all but one over 100,000 in population points up the definite organizational trends that have developed. Prominent among these is the increase in subject departmentalization in the medium and large public libraries. The merits of this type of organization in which the reference and circulation functions are combined in several subject departments have been widely discussed in library literature. By now it is generally accepted as the type of organization which gives the most adequate service by providing for greater competence in book selection and familiarity with the tools that are being handled. It was first conceived in 1900 by W. E. Foster in the Providence Public Library when he created an Art Department and an Industrial Department in the new building to serve the needs of the art and tool industries in that city. It was later demonstrated by William Howard Brett in Cleveland in 1913 when that library moved into rental quarters. Los Angeles, Minneapolis, Washington, D.C., and the Enoch Pratt Free Library in Baltimore followed soon after. Detroit recognized Fine Arts, Music and Drama, Technology, and the Burton Historical Collection as separate departments when it opened its Main Library building in 1921. The useful arts and the fine arts were easily identifiable subject groups which lent themselves readily to segregation and served the special needs of patrons. In each library which has moved into this type of organization, the pattern has been somewhat different. Los Angeles abandoned its general reference department in 1927, and the general reference books, encyclopedias, dictionaries, and bibliographies are in the Literature and Philosophy Department. Enoch Pratt, Cleveland, and Detroit have maintained strong general reference departments, although in each the scope is somewhat different.

The dangers inherent in this system have been well recognized

because of the overlapping of fields of knowledge, and this is probably even more true today than it was when the system was first devised. A. L. Smyth, Information Officer of the Manchester, England, Public Library, writing in 1960, says, departmental libraries are ". . . a mixed blessing for the research worker."[18] He points out the dangers of separating knowledge into water-tight compartments, of having separate subject catalogs, and having books with many subject aspects allocated on the "whim of a classifier." He says that today the archaeologist is expected to have a knowledge of radio-geology, radiochemistry, and television techniques. It requires constant vigilance to ensure that the patron is provided with material on all aspects of his subject and that he is not shunted from one department to another. Harry N. Peterson has described the precautions taken by the Washington, D.C., Public Library to overcome these and other problems of departmentalization.[19] Each library has met the problems in its own way, and the different groupings of subjects in the large libraries show the difficulties of finding any completely logical arrangement. Shall the arts all be together or shall the performing arts be separate; shall education be with religion or with social science; does business belong with technology or economics; where does biography go? In the end, the decisions have to be arbitrary and the patron has to be carefully guided by directories and by staff at information desks. The new subject alignment in Detroit will be as follows: Philosophy, Religion and Education; Business and Finance; Sociology and Economics; Technology and Science; Fine Arts; Music and the Performing Arts; Language and Literature; History and Travel; General Information and Biography.

The division of the library into subject departments to strengthen its reference function brings with it organizational problems that have been solved in various ways. The common pattern is for each department to have its own chief and professional and clerical staff. The chief may be responsible to the director or to a subordinate administrator who reports to the director. Rose Phelps in her 1947 study of the organization of the Los Angeles, Boston, and St. Louis reference services,[20] found that in Los Angeles there was no supervisory officer for the subject departments, but in 1948 a librarian-bibliographer was appointed to assist in bibliographic subject integration. Since then a Director of Subject Departments has been added. In Boston there is a Chief Librarian in charge of the Reference Division; he is responsible to the Director. St. Louis showed no supervisor of central library departments, but recent reorganization is

increasing the number of departments and making them responsible to a supervisor of reference. Reed, in her survey, noted that a coordinator of reference service to integrate the work of the various subject departments is more and more to be found.[21] In Brooklyn in 1949, the reference service was organized under the coordinator of reference work who was to supervise not only the reference work in the Central Library but also in the branches. Regularly scheduled meetings of reference assistants in all agencies are held, and a basic list of reference books for branches is maintained. In Cleveland, Baltimore, and Philadelphia there is a librarian in charge of the Main Library who is responsible for the subject departments. In Detroit the position of Director of Reference Services was established in 1945 with responsibility for the ten subject departments at the Main Library and the Municipal Reference Library, but with no jurisdiction over the branch reference work. Other patterns are developing as more and more medium-sized libraries are moving into new buildings and changing their organizational arrangements.

Telephone service is another of the expanding public library reference developments noted by Sarah Reed in her 1946-1956 survey. Florence Gifford, formerly Head of the General Reference Department at the Cleveland Public Library, wrote in 1943, "Few large libraries, even, set up any special service for their telephone public and many of them are apparently attempting to discourage it by definite and rigid limitations." [22] She predicted, however, that the rubber shortage and gas rationing during World War II would force people to turn to telephone service and that libraries should recognize the importance of this service to busy people. This has proved all too true.

Telephone reference service is, of course, more extensively used in the large cities than in the small cities. The Reference Survey points out that telephone service decreases slightly with the size of the library, but that only 6.2 per cent of public libraries do not answer telephone questions.[23] In metropolitan areas it is a natural result of the decentralization of population, transportation difficulties, lack of parking facilities, etc. It is the pattern followed by business and industry in all their transactions and is bound to continue to increase.[24] The problem for libraries is to provide for it realistically so that it interferes as little as possible with service to those who do come to the library. This has been done by setting up special telephone desks equipped with ready reference books, clipping files, and card indexes of various kinds to siphon off the quick, direct questions from the other departments. Cleveland and Detroit pioneered in setting up such

a desk in the Reference Department during World War II. In 1953, Brooklyn set up a Telephone Reference Service in a separate room with a book collection which duplicates some books of other departments as well as having current clippings and special indexes. It has its own staff of three librarians. St. Louis, Philadelphia, and other large libraries have now followed suit. In the new Technology and Science Department in Detroit, a separate telephone desk will also be maintained to handle requests from business and industry.

A tremendous growth in this service is reported in metropolitan areas. Cleveland with twenty-five trunk lines and Detroit with eighteen, report that about half of all requests for information come by telephone. New Orleans reported a 209 per cent increase in telephone questions from 1945-1955. In Philadelphia the ready-reference telephone service showed an increase from 38,677 in 1955 when the service was instituted, to 69,998 in 1960. The New York Public Library's *Ten Year Report* for 1946-56 comments on the fact ". . . that telephone service holds up despite decline in on-the-spot reference use. . . ." [25, 26]

Reed noted in her survey that most libraries find it necessary to place some restrictions on telephone service in order to make the most efficient use of the telephone. The most frequently cited limitations involve quiz, puzzle, or contest questions; reading of lengthy or detailed information; medical, legal, or consumer information; and children working on class assignments.[26] The same restrictions are mentioned in the Reference Survey.

There is no escaping the fact that the telephone is a means for rapidly getting information which would cost the reader a fair amount of time if he were in the library himself. It does throw a greater burden on the library staff and some restrictions are necessary so that it does not overbalance other kinds of service.

As might be expected, the type of staff doing reference work varies with the size of the library. The Reference Survey found that one-third of the small libraries have a full time professional and 14.4 per cent have a part time professional assigned to reference work. However, 23.8 per cent have full time non-professionals doing reference work. Of the medium-sized public libraries only 37.4 per cent have a full time professional in reference and 15.9 per cent have full time non-professionals doing this work. The large libraries, of course, have many full time professional librarians doing reference work. Detroit, for instance, has sixty-eight professional positions assigned to the Main Library subject departments.

The size and utilization of the staff for reference use is related to the type of questions asked. Several rather extensive surveys and studies have been reported in the last thirty years. Edith Guerrier reported on a survey taken October 14-19, 1935, in nine library systems —Boston, Cincinnati, Denver, Houston, Los Angeles, Providence, Seattle, Tampa, and Washington, D.C.—that the major part of "reference work" was of the fact finding or information type.[27] She concluded that it would be possible for a general assistant with library school or college education who had a "retentive memory and a fact finding instinct" to answer 83 per cent of the questions. Eight per cent of the other questions might be classed as research and 9 per cent as readers' advisor.

Six years later Dorothy Cole gathered data from thirteen libraries on characteristics of reference work and made a very thorough analysis of the questions asked. She found that 93 per cent of the questions fell into four types: (1) fact type—55 per cent, (2) how-to-do type—10 per cent, (3) supporting evidence type (Do colonies pay?)—8 per cent, and (4) general information of a subject type (information on cosmetics)—20 per cent.[28] She also found that 72 per cent of the questions were related to events in the present century and that 69 per cent of the questions in public libraries fell within the fields of social sciences, useful arts, and history.

In 1947 Mabel L. Conat reported on a survey of reference use made at the Detroit Public Library in one month. The survey showed that the average amount of time spent per question was 8.4 minutes at the Main Library and 5.2 minutes in the branches. Questions which required over one hour to answer amounted to 1.57 per cent of the questions asked at Main Library and .02 per cent of branch library questions. The types of material used was also analyzed with the following results.[29]

Types of Materials	*Main Library*	*Branches*
Reference books	32.22%	20.20%
Circulating books	18.57	68.78
Periodicals	9.55	4.24
Documents	9.36	.65
Pamphlets	6.20	6.03
Clippings	5.48	1.04
Pictures	2.66	1.81
Departmental information files	15.87	.51

Since at Main Library less than a third of the questions were answered from reference books, this points up the importance of subject departmentalization where all types of material relating to a subject are in one location.

The results of all these surveys point to the preponderance of quick reference questions, and there is no reason to think that the results would be any different if the surveys were taken today. The large percentage of quick reference questions in public library service is one result of a philosophy of service which has been widely accepted by public libraries. It means that they have taken on the role of information centers as opposed to teaching centers. John Cotton Dana, a proponent of the latter concept, felt that the prime duty of the reference worker in the public library was not to answer questions but to instruct the patron in the use of material so that he could find his own answers. Many others agreed with this "conservative" theory of reference work, as Samuel Rothstein calls it.[30] But the increasing demands of patrons for information, the desire of public libraries to render a popular service, and the enthusiasm of the growing body of trained reference librarians has led to the acceptance of the idea of supplying direct answers to questions from whatever sources in which they may be found. This means not only using reference books but every type of library material and community resource.

Although the percentage of quick reference questions to research questions has probably not changed much in the average library in the last 20 years, the emphasis has shifted to new fields. Since World War II the explosion of knowledge in the fields of science and technology has greatly increased the reference requests in these areas as well as in the fields of sociology, economics, and international relations. Even though this is true, the greatest percentage increase in reference questions in the Detroit Public Library in the last 10 years has been in the Language and Literature Department rather than Technology or Social Sciences because of the increased student use.

The clientele of the public library is an important determining factor in the type of reference service that is given. In 1891, W. A. Bardwell of the Brooklyn Library said, "The reference-room is used largely by newspaper reporters, by authors, by teachers and students, by members of debating societies, and by people doing literary work which requires frequent reference to dates, quotations, etc." [31] The Survey of Reference Service in 1955 listed the types of clientele provided with reference service in the following order: high school

students, club women, teachers, college students, businessmen, other libraries, and factory workers. Other groups most frequently named included artists, city officials, clergy, laborers, lawyers, housewives, and writers. The Survey concludes ". . . that needs related to formal instruction, and those of women's organizations and business concerns occupy a great deal of a reference department's time. People with well-defined informational needs related to their work or community activity are more likely to turn to the public library for help than are the average citizens—or the professional people whose needs require specialized literature beyond the capacity of most public libraries to supply." [32]

The great change from 1891 to the present time is from almost purely literary demands to those related to educational, vocational, and business needs. There is no doubt that in the larger cities, at least, the demands of business and industry have become increasingly heavy since World War II. They put heavy demands on the libraries to purchase and assimilate the tremendous amount of research material being published every day. Conat noted in the 1947 Detroit Public Library Survey that questions from business and industry required about 60 per cent higher expenditure of time than the general average. She also noted that the questions asked by the business firms were not limited in subject scope or in departments consulted. One automotive company consulted eleven different agencies for help.[33] In 1960 a survey of organizational use of the Detroit Public Library during one month showed the same results. One motor company consulted nine departments at the Main Library. This, of course, points up the fact that corporations expect their executives to have far broader interests than those of their own specialties, and they turn to public libraries to supply these needs. Those with the largest special libraries of their own make the heaviest demands on the nearby public libraries.

Public libraries are, therefore, required to make some sort of cooperative arrangements to meet these demands. Many cities provide special privilege cards for business organizations permitting limited borrowing of reference books, bound periodicals, and government documents not normally loaned. Detroit has a list of over 400 organizations which are granted a four day borrowing privilege on special materials.

The financing of these special services and the purchase of the expensive materials needed by business and industry constitute a problem for public libraries all over the country. It is, of course,

aggravated by the fact that many of the demands come from beyond the tax support area of the library. Studies are being made and solutions are being sought for means by which realistic support can be provided by business and industry for reference service of this type. A. L. Smyth notes in England that cooperative organizations for supplying information to industry based on the local public library exist at Sheffield, Liverpool, Hull, Newcastle, and West London.[34]

The most phenomenal growth in reference service demands in the last ten years has, of course, been the student use. Unlike service to business and industry, which is a problem of particular concern to the large and medium-sized libraries, the student problem is felt at every level of public library service. This is a result not only of the increased enrollment of students in high schools and colleges, but of the new methods of teaching with emphasis on independent study which places great dependence on the public library. The change from dormitory-centered colleges to the day-student concept has also forced the college student to seek help from whatever library is nearest his home.

Since this problem has received so much attention from the library profession, there is no need to labor the points here except to refer to a few basic facts. The Reference Survey found that heavy student demands on reference service are being felt by 84 per cent of the public libraries of the country while 97.5 per cent of these communities have a high school library available. This is explained by the fact that in most of these communities the public library collection is more extensive than the high school library and remains open for longer hours.[35]

An interesting comparison may be made in the two surveys of reference service in the Detroit Public Library. The 1947 Survey showed that at the Main Library 25.5 per cent of the reference questions were related to student assignments. Of these, 62 per cent were college and 33 per cent were elementary and high school.[36] In the April 1962 survey at the Detroit Main Library, it was found that 60 per cent of the patrons were students, and of these 62 per cent were college and 38 per cent were elementary and high school students. This growth in student use can be documented by public libraries all over the country. Manchester, England, reflects a similar situation in its 1954 census of users of the Public Library which showed that 53 per cent of its users were full time students, and of these 70 per cent were university students.[37]

For the metropolitan library, the problem is further complicated by

the fact that students swarm in on Saturdays and vacation periods from communities in a wide radius and make heavy demands, without any provision being made for financial support for the reference use of the library. This influx of students requires special planning in libraries all over the country. The Brooklyn Public Library reports that, beginning in 1961, sixteen agencies have been designated as Reference Centers and are rapidly building extensive reference collections to absorb some of the heavy student pressure from the Main Library.[38]

The increased demands for reference service to serve the needs of students and business and industry, whether it is by telephone or in person in large or small cities, requires a sharp look at ways in which these needs can be met. It comes at a time when most libraries are faced with a shortage of professionally-trained librarians. What can be done to spread the staff we have and to utilize it to the best advantage?

In the first place it is necessary to divide the professional from the clerical work. Public libraries have been slower than college and university libraries to do this. It not only is necessary but desirable in order to make more satisfactory and stimulating work situations for the professional staff. Much checking in of materials, indexing to the extent that it is necessary at all, clipping and the preparation of pamphlet file material, and answering routine reference questions such as those from city directories are now frequently done by clerical or pre-professional assistants. This is also an area in which automation will develop most profitably in libraries. In John Pfeiffer's book, *The Thinking Machine*, he says, "Many of the operations required in library indexing, cross-indexing, and filing and retrieving information are sheer routines, mental assembly-line work. . . . Computers are being used increasingly to help prepare indexes at speeds far exceeding the capabilities of human workers." [39] The full implications of automation in reference work are being discussed in another chapter of *Library Trends.*

It has also become necessary to re-evaluate reference service. As it becomes more costly in materials and staff, we are forced to give up some of our ideals of complete service to patrons and to return to the "conservative" theory of reference work where we help the patrons to help themselves. Department heads at the Detroit Main Library say that we do less and less reference work in depth, but much of the work is instructional. With better indexes and tools to use in the

subject fields, the librarian can perform a real service to the patron if he can demonstrate to him how to do his own research. More people who come to the library today are capable of doing their own searching and are glad to do it under staff guidance.

The facts, of course, are that as the quantity of people served has increased, library budgets in most cases have not kept pace and professional staff is not available even where there is money. While we agree in theory with Samuel Rothstein that ". . . we should look for ways to work at greater range and depth, to do always more not less,"[40] we still have to learn to do the best we can with what we have.

The problem of support for libraries which are expected to give reference service to areas beyond their tax boundaries leads inevitably to the concept of larger areas of service. This is developing in many ways in different parts of the country, but requires state support to make it entirely effective. Legislative provisions for support have been provided in New York, Pennsylvania, Massachusetts, and Maryland. The New York State proposal, for developing reference and research service by providing a fund based on $10 per student in higher educational institutions and $5 for each professional person as recorded in the census, has not yet been passed, but it is the most realistic proposal that has yet been evolved. In New York the state-aid to libraries appropriations do, however, make it possible to establish regional reference service such as that developed in Nassau County on Long Island. This provides for a headquarters reference collection particularly strong in science and technology and five special subject centers chosen for their strength in certain fields.[41] Wisconsin and California are establishing regional reference centers, which will be described in another chapter of this issue of *Library Trends*. Denver has organized a four-county cooperative reference service centered in the Denver Public Library,[42] and Metropolitan Toronto is experimenting with regional reference centers. Massachusetts established its first regional library at Fitchburg in 1962 under the 1960 state aid law. Twenty libraries form the Central Massachusetts Regional Public Library System which will supply reference service from the headquarters library.[43] In 1962 the establishment of the first of five regional libraries was announced in Philadelphia to help meet the reference needs of the area.[44] Michigan introduced in the legislature last year a bill providing a new state-aid formula which, if passed and implemented by an appropriation, would provide about $500,000 in state-

aid for Detroit to help pay for the reference service which it is now supplying to the metropolitan area.

As these plans develop all over the country, it means that the small public library will not have to be dependent on its own resources to render service to its patrons. Through a network it will be able to have access to a stronger regional library and beyond that to a larger resource library. It will eliminate much unnecessary duplication of purchases and will demonstrate to patrons in small communities the real value of reference service to individuals and to business organizations.

Greater cooperation between libraries is a natural extension of the idea of larger areas of service. It points to a division of responsibility in fields of specialization within a county, such as Nassau or within a region or state. Those libraries which have developed strong reference collections in certain subject areas should be encouraged to strengthen them, and other libraries should not duplicate them but develop in other areas. This means consultation between libraries in the purchase of major reference materials in order to enrich the total resources of a region.

In a relatively short span of years from Samuel Green's first plea in 1876 for personal service to library patrons, much has happened to the world and to libraries. Samuel Rothstein says, "When reference service and particularly an information service became established as a regular part of American library practice, it really constituted a new dimension in librarianship; we began to deal in knowledge and not just volumes." [45] This "new dimension" has made the public library a vital, necessary part of the community, closely geared to whatever is going on in the world. The challenge for the future is to provide adequate support for reference service so that materials and trained staff are ready to provide information when it is needed. Through the organization of larger areas of service, the resources of the great will become available to the small and every library will be able to take its place as the information center for its community.

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Reference Service in Special Libraries

MARY EDNA ANDERS

THE DEVELOPMENT OF SPECIAL LIBRARIES, essentially a product of the twentieth century, has been characterized by the rapid increase in their number, from 50 in 1907 to 3,473 in 1962, and by significant changes in their functions. The growth of services offered by special libraries has been directly related to the expansion of research and development programs, reflecting especially the impetus given to such programs by the two world wars and the major emphasis accorded research since World War II. "In its first 150 years as a nation, the United States—Government and industry combined—spent some $18 billion for R & D. That total was matched in the five-year period, 1950 to 1955, and almost matched again in the single fiscal year of 1962." [1] This mushrooming of research has stimulated the development of new libraries as well as the expansion of existing ones.

Research organizations, businesses, governmental agencies, and similar enterprises established libraries in order to centralize materials housed in individual laboratories and offices and to unify information-like activities. Initially, therefore, the special library's role was restricted to that of a repository. Due in part to the librarian's effort to provide additional justification for the existence of the library, the idea of an information or reference function emerged. Leading to the establishment of reference services, the librarian gradually assumed responsibility for assisting the user to obtain the information he needed, first helping those who were unable to manage alone and then providing assistance in order to save the time of the research worker. Special librarians have slowly expanded the service role, and in some libraries service now includes active collaboration of the librarian in the conduct of specific projects or research activity.[2]

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Reference Service in Special Libraries

Reference services differ considerably in special libraries, their nature being determined in major part by the purpose, dominant subject interests, size, and administrative structure of the parent organization as well as by the initiative of the library staff. In spite of the variations, reference activity in an individual special library normally corresponds to one of the levels of service identified above. It may be restricted exclusively to aiding those who lack facility in use of material, or it may encompass a complex array of services, including direct participation of the librarian in the research process. In discussing the work of the special librarian Adkinson said:

> In partnership with the scientist and technologist, and armed with skills of modern library science, the special librarian tackles the arduous task of making readily available to them the knowledge and experience of others. He is skilled in the use of standard bibliographical tools, and he knows the locations of larger and more comprehensive collections than his own. He seeks to understand the habits of his readers and the processes by which they come to need and later use data. He is aware of the objectives of the investigators he assists and can therefore anticipate their information needs.[3]

For descriptive purposes, reference services provided by special libraries may be grouped into four primary and six auxiliary categories. Primary service consists of those responsibilities essentially informational in character. The first two listed below are extended on request; the last two may be offered voluntarily.

1. Provision of information in response to specific request. Requests for information range from a question that can be answered by picking up a handbook and reading off a fact to one that requires use of numerous published and unpublished sources in assembling extensive data. An increase in the proportion of requests for a specific fact to other types of queries has been noted. Reporting that it has been "years" since she was asked for "everything you have on . . .," one special librarian has said that about 75 per cent of the questions she received were brief ones. Most of the queries were of either the (1) What's in it? (2) Who makes it? or (3) Where does he work? variety.[4] Listing "more demands for specific technical information" as a trend in special library reference work, Burton attributes the "noticeable growth in reference questions which demand specific answers" to the "exacting requirements of the space age." [5]
2. Carrying out literature searches. Through careful and exhaustive

checking of appropriate sources, the special librarian assembles either the relevant information or references to the sources wherein the data are found. In his study of scientists' approach to information, Voigt concluded that the number of times the "exhaustive approach," or a search of the literature, was used was "small in comparison to the number of times" other approaches were employed.[6]

3. Preparation of bibliographies. Usually the bibliographies are relatively brief lists carefully selected to correspond to a specific need. They may, on occasion, be prepared on the librarian's initiative to suggest material on topics of current or of general interest to the library's users.[7]

4. Scanning and referring current information and new material to appropriate individuals. As a matter of routine, serials, technical reports, books, and other materials are examined and sent directly to the attention of individuals who will be interested and who have a need to know about the developments reported. No more eloquent testimony to the importance of this service can be found than the list compiled by a member of a research staff of five types of information required by scientists. Four of the five items relate to the "keeping up process," and the last of the desired services reads "To have called to their attention new and stimulating developments or facts in fields in which they are not presently interested but in which they might become interested if they knew of the new facts or developments!" [8]

Auxiliary services are those related to and supporting primary reference functions. They include: interlibrary loans, abstracting, publishing, translating, and photoduplication services.

Interlibrary loans. The self-defining subject limitations of special libraries have helped stimulate their use of interlibrary loans. Because subject specialists on occasion want access to material outside their fields and because these needs frequently cannot be anticipated, special librarians are often unable to supply from their own collections the desired material. For this reason special libraries are well-known borrowers, so well-known in fact, that Sass, basing his statement on his survey of a selected group of special libraries and bibliographical centers, characterized the ". . . relationship between special libraries and their larger college and public counterparts . . ." as being ". . . largely of the host-parasite variety. . . ." [9] Supporting her reply with isolated illustrations, Ferguson insists that the "Special Librarians Need Not Be Parasites." [10] Adding emphasis to Sass' findings, however,

although writing from another viewpoint, Nicholson points out that loans to industry dominate the interlibrary lending of urban universities. In 1960-61, for example, 93.8 per cent of the interlibrary loans made by the California Institute of Technology Library were to industrial concerns.[11] The volume of loans has become so great that some institutions (MIT, Stanford) have established an associates program whereby businesses pay a membership fee which entitles them to use and borrow library materials.

Abstracting services. Abstracts may be provided in connection with dissemination of current information, in reporting the results of literature searches, and in the process of answering specific questions. Although commercial abstracts are of major importance, they also possess certain limitations. A publication may be a part of the special library's collection for months before it appears in a commercial abstracting service. A locally prepared abstract, however, can be circulated shortly after the publication is added to the collection. In addition, the special librarian can select for abstracting only those new materials possessing significance for that organization, thus saving time of research personnel who can avoid use of the more complete commercial services except for specific problems.[12]

Publishing services. Services related to publishing possess two facets: (a) activities related to material prepared and distributed by the special librarian, and (b) editorial activities related to publications produced by users of the library. The special library staff may prepare newsletters which describe library services and new materials or present selected bibliographies on topics of current interest. It is generally agreed that information services should operate as a ". . . filter not a funnel . . ."; through a bulletin the librarian ". . . eliminates what is unnecessary, coordinates the material and disseminates it."[13] While some of the bulletins may be essentially public relations vehicles, they offer a means for publicizing information as well as the reference services offered by the library. Editorial assistance to users is no more than answering requests for specific information relating to the formal presentation of information. Editorial activities may also cover consultations regarding the indexing of company publications as well as questions pertaining to their final form.

Preparation of special indexes and files. The proliferation of unconventional material (clippings, charts, supply catalogs, specifications, for example) used in special libraries has helped to increase the number of separate files librarians maintain. The unusual formats

of the items in the collection mean that ordinary tools such as a card catalog and commercial indexes offer inadequate aid. Consequently, indexes to trademarks, to corporations possessing certain qualifications, and to other relevant subjects are prepared.

Translation services. When the need to read foreign languages arises, the American worker is frequently unable to continue the search for information. In order, therefore, to supply desired information, the librarian, usually equally unconversant with foreign languages, must be able to provide translations. Out of the need to obtain satisfactory translations and the concern over duplication of efforts has evolved one of the more successful special library cooperative programs—the SLA Translation Center at John Crerar.[14] Whenever it is possible to do so, libraries file with the Center copies of translations they have prepared. These translations then become available to others. Special librarians are also involved in some of the pioneering work in machine translation.

Photoduplication services. Where several staff members need or are interested in the same information, copies are frequently supplied. Copies of library materials are also provided for project files. The nature and extent of photoduplication services are naturally affected by the kind of equipment available.

No studies of the relative importance of the different types of reference service have been undertaken; the few comparative statements quoted above refer to their rankings in certain situations. Statistical data regarding the frequency with which the services are offered are also lacking, and generalizations have to be based on whatever appropriate comments can be located in the literature.

In some instances the special librarian's responsibility encompasses all of the primary and auxiliary reference functions identified above; in other cases the library handles only requests for specific information. Bibliographies may be compiled and literature searches conducted by an "information center" or "documentation division." Considerable disagreement exists regarding the distinction between information centers and libraries. Even more differences of opinion arise in discussions regarding the responsibility, as well as the ability, of the librarian where literature searches and similar services are concerned. Certainly, each of the services discussed above is offered by some special libraries, even though it may not be a part of every library program. Each of the services may, moreover, appropriately be considered a reference or reference-related service.

A study of the literature reveals no general pattern distinguishing the services of a library from those of an information center. In the absence of objective studies, it seems advisable to recognize that differences of opinion and practice exist and to accept Gray's generalization ". . . that in any laboratory the name applied to the major organizational unit in which information programs fall is likely to be a function either of chance or of the history of the agency." [15] Jackson predicts ". . . that by 1980 it will be impossible to distinguish between a special library and a documentation service." [16] The significant factors are, of course, that those informational services needed to support an organization's program be available and that they be provided by qualified personnel. It is obvious, however, that a new professional worker has emerged who will assume responsibility for some of the primary and auxiliary functions. The new worker is identified directly with literature and with the theory and handling of information.

The size of the parent organization and related factors determine the organizational framework through which the above primary and auxiliary services are extended. In some cases all library activities are handled by one professional librarian who may or may not have clerical assistants. At the other extreme the library staff may include several professional librarians and subject specialists plus technical and clerical assistants. In addition, in large corporations possessing numerous branch operations, libraries may function in each plant. These "branch libraries" may be unified administratively and may have access to TWX services in order to expedite the exchange or flow of information.

Although they do not help to define or clarify reference service in special libraries, numerous guides to the organization of information services exist. (See appended list of additional references). The handbooks for specific types of special libraries all include sections on reference service. Programs for the services grouped here as primary and auxiliary services are generally outlined in the guides, although they may be treated separately. In addition to the treatment accorded them in the handbooks, the services have been analyzed in varying detail in journal articles.

Subjective statements of research workers and studies of the use of special libraries add to an understanding of reference service. Library users have spoken frankly concerning the type of service they need and the frustrations they experience in seeking information.

Some of them display an accurate interpretation of some of the problems involved in providing the service they wish to receive. A few recognize they themselves can, by following some simple practices, get more from the library.[17]

Numerous studies of the use of, or approach to, information exist. These studies have commonly employed either citation counting, interviews, or the diary method to collect data regarding the material used by scientists and other workers. In addition to discussing the merits of different types of studies of the use of information, Egan and Henkle give a sixty-three item bibliography of such studies.[18] Voigt analyzes some of the more significant writings concerning use of information [19] and introduces his own detailed study of scientists' approaches to information. Although his study ". . . covered only certain areas of science, . . ." he feels "there is no reason to believe that similar conclusions would not be reached in other fields of science or in other areas of research, such as the social sciences." [20] In the study which is one of the most revealing of those available, Voigt classifies the approaches into three groups: current, every day, and exhaustive. He then considers in detail the methods and sources most important to each approach.

A third source of information, studies of the use of individual libraries, sometimes includes findings that have application beyond the walls of the library studied. Results of Jacobs' recent examination of reference queries at John Crerar, for example, ". . . suggest that even in a highly specialized technical library more use could be made than is now being made of non-professional personnel in handling of reference questions." [21]

Distinctive Features of Reference Work in Special Libraries

Reference service has been identified by some as the distinctive characteristic of special libraries; others have said that the way in which service is provided marks the special library; still others indicate that reference service is reference service and no real difference exists from one kind of library to another.[22] Evidence from the literature of information service supports those who speak in terms of distinguishing features of reference work in special libraries. In comparison, the difference between reference services in special and other libraries is essentially a matter of degree or depth of service and of importance or frequency of demand for specific services. Reference service in special libraries is characterized by the following features.

1. Lack of emphasis on the teaching function. The special librarian finds the information rather than teaching the user how to find it for himself. Only in the case of special collections serving instructional programs is the teaching function recognized. More specifically, a librarian serving a medical school may stress the instructional aspects of reference work,[23] but the librarian serving a medical society will emphasize performance of work for the users.[24]

2. Greater participation of the special librarian in the search for information. The special librarian may be involved in the initial planning and discussion of a project or experiment, adding his knowledge of information sources to the contributions of the various subject specialists. In this widely accepted group or operations research approach, the special librarian has the opportunity to work closely with organizational personnel as a recognized member of the team.[25]

3. Emphasis on information. The special librarian deals in information not in bibliographical units; he is expected to supply the answer to a question rather than provide the sources wherein the answer is contained. This leads to a depth of reference work that other types of libraries cannot normally support. Years ago Margaret Mann wrote, "many organizations do not need a library so much as they need a searcher, someone well versed in literature, who can visit libraries and do the searching for the busy man."[26] Working "for the busy man," all of the staff members of the special library may concentrate their time for several days, or as long as need be, on one question. In fact, according to Henkle, the special librarian may well be the heaviest user of the library's collections.[27]

4. Presence of time pressures. Free from the pressures produced by several classes writing on the same subject and from the demands of rush hour patrons, the special library is more inclined to pressures arising from deadlines, from emergency situations.[28] Something happens in the laboratory; there is a client on a long distance line; a conference is suddenly called for this afternoon—each of these can create an urgent need for a fact or facts. Although these crises are routine, they are always handled as emergencies because the needed information could have a vital influence on the work of the organization.

5. Differences in the relationship between the special librarian and library users. Users of a special library are likely to possess a greater degree of homogeneity in that most of them have academic training plus subject specialization and experience. Most of them normally have some acquaintance with the use of information if not with the

use of libraries. The special librarian sees these people more frequently and over a longer period of time than is customarily the case where users of other kinds of libraries are concerned. From these contacts the special librarian develops an intimate knowledge of individual interests and work habits and is consequently able to operate more effectively as a liaison between the user and sources of information. The closeness of the relationship contributes to the successful collaboration of the research worker and the special librarian in obtaining and using information.

6. Utilization of subject specialists. In those libraries or information units where reference service is highly developed, the staff customarily includes individuals with academic backgrounds in subjects corresponding to the dominant interest of the organization. These individuals may be called literature searchers, information officers, literature analysts, or technical librarians. Whatever their titles, they are normally engaged in activities related to compilation of bibliographies, literature searches, and to preparation of state of the art reports, abstracts, and reviews. In discussing the use of subject analysts in the Legislative Reference Division of the Library of Congress, Goodrum wrote: ". . . as long as the service was asked to provide factual answers to specific questions, the librarian was most efficient. But when the inquiries began demanding either broad analyses of past situations or anticipated results of some theoretical future move, we had to have more highly specialized personnel." [29] The librarian, he said, was able to get the answer to such questions, but the specialist would produce it faster and more fully.

The emphasis given to these six characteristics should in no sense be interpreted to mean that they exist only in special library reference work. Certainly, reference work of great depth is performed elsewhere; of course, close ties exist between some librarians and some patrons in public and academic libraries. Restating the introductory generalizations to this section, the distinctive character of reference service in special libraries is found in the repetition of certain of its features, the regularity with which the features appear. Again, reiterating an earlier statement, differences in reference activity exist but they are primarily a matter of degree.

These distinguishing features contribute to the magnification of certain problems directly involved in reference service in special libraries. These problems, outlined in the following paragraphs, are by

no means restricted to special libraries but are usually more acute there.

Subject specialization of personnel. As the special librarian becomes more actively involved in research, in the daily work of the organization's personnel, his need for subject competence increases. The number of librarians with academic backgrounds in the sciences and, to some extent, the social sciences, is small. The continued expansion of special libraries and the lack of librarians with appropriate subject backgrounds have directed attention to the kinds of training needed to support the various reference and informational activities. Although no general agreement has been reached, widespread recognition exists of the need for training of a kind not presently found in library schools. Acceptance of the subject specialists, under a variety of titles, as a member of the reference staff is unquestioned. Considerable uncertainty exists, however, as to who should be charged with the ultimate responsibility for some of the services outlined above.

Whether the librarian and the information specialist will work together in the development and improvement of all the services or whether there will be an ultimate division of activity with the librarian working almost exclusively with specific categories of service and the technical information officer handling other types has not been determined. The formation of the American Documentation Institute in 1937 shows that librarians in their organizations and their thinking have not satisfactorily accommodated all of the approaches to information problems. This fragmentation of organized effort suggests that while the librarian and the information specialist will collaborate, there will always be the two separate and distinct professional approaches.

Use of non-book material. Due to the emphasis on certain subjects and the necessity for up-to-date information, the special librarian relies heavily on non-book material and unconventional formats. Egan identified a revolution in the communication of specialized information ". . . brought about through increasing specialization in all fields, through changing methods and agencies in research, and as a result of shifts in the organization and relationships of scientific, industrial, and governmental activities under the impact of war." [30] A multilithed market survey, specifications, a supply catalog, a technical report—these represent the kinds of material found in quantity in special libraries. The bibliographical problems involved in acquiring, filing, and using these various types of material are numerous and time-con-

suming. The deluge of technical reports in the last two decades has affected considerably, for example, the kinds of material used in research. In addition to the difficulties in identifying and obtaining specific items in the various less conventional formats, some of which are unpublished reports, the special librarian frequently encounters classified material—both security and proprietary classifications—and additional complications in his search for information.

Need for more detailed indexes and other aids. Emphasis on information, reliance on non-book material, the necessity for up-to-date information, and the pressures of time have caused the special librarian to develop "home made" reference tools: indexes, data files, and abstracting services. Maintained over the years, these tools have in many cases proved to be inadequate in terms of the great increase in volume of publication and changes in the way information is disseminated. The information explosion has created acute problems for libraries, and special libraries have felt the impact acutely. Special librarians have concerned themselves, therefore, with the general problem of bibliographic control; they have led in the utilization of machines in information retrieval.

Users of special libraries are vitally concerned with these problems —particularly where their specialized knowledge can be utilized in the search for a solution. Non-librarians have taken leading roles in the study and research on information retrieval, the application of machines to reference work, and the general subject of information, its nature, dissemination, and use. They have assumed major responsibility for conferences, both international and local, at which these problems were discussed.

Characteristics of the literature and the research methodology identified with dominant subject interests. Some problems associated with reference service arise because of the dominant subject interests served by the library. Either the subject content or the methods of research commonly utilized in the subject affects the informational needs of the workers in the respective area or produces difficulties peculiar to that field. Obviously the reference tools change from field to field, but specialists feel there are fundamental differences in the use of information produced by, in oversimplified terms, such factors as the social scientist's concern with trends and his use of the case study and survey, and the scientist's need for specifications and his emphasis on experimental methods.

Outside requests for service. The distinctive nature of the resources

of the special library frequently attracts outsiders who request reference assistance as well as access to the collection. Although special libraries are virtually private libraries serving distinct groups, their administrators have not found that this characteristic constituted provocation for ". . . denying service to those outside the spheres, who have legitimate need of it, . . ." [31] particularly when the "outsider" has been sent from another library. In those special libraries serving the professions of medicine [32] and law,[33] grave reservations exist about extension of service to laymen, and more restriction on outside use occur in these subject areas. In the case of some of the technical and commercial libraries, service to outsiders is encouraged as part of the public relations program.[34] Some special libraries offer extensive services on a fee basis, the best known examples being John Crerar's Research Information Service and the services offered by the Engineering Societies Library.

The distinction between information services and reference is more exactly drawn in European countries. Evidence suggests that reference service, the service associated with the provision of answers to requests for specific information, is less well developed abroad.[35] On the other hand the services provided by the "information officer"—abstracting, indexing, and literature searches—are quite advanced. Programs for the training of the information officer or literature analyst are well established, and a voluminous literature relating to special libraries and information services has been developed. No studies of the impact of foreign developments on American programs or vice versa are reported in the literature.

Only an incomplete picture of reference service in special libraries can be drawn from the literature which is primarily subjective and interpretive in nature. There is, for example, little objective information on such items as: size and composition of reference and/or information staffs; availability of specific services; and distribution of staff time among various reference functions. The literature reveals, however, expansion, both in number of units and in kinds of service offered. The emergence of a technical information specialist, a non-librarian, who handles those informational services dependent on subject knowledge stands out clearly in special library development—whether a rigid distinction will be established between his activities and those of the reference librarian has not yet become apparent.

Without question, much is happening in special libraries today, particularly in those in science and technology. They are serving as

the laboratories wherein experiments in the use of machines in information retrieval and in translation are being conducted. These experiments, produced by the combined efforts of librarians and representatives of industry and government, should enhance the role of the librarian as a collaborator of the researcher and the technician. Work currently underway in special libraries may well exert significant influence on reference service in other types of libraries.

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Statewide and Regional Reference Service

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THE PURPOSE OF THIS PAPER is to identify and describe the several kinds of library systems that provide reference services to supplement those offered by the individual components of the systems. In public library organizations, a region encompassing a number of separate political units is the usual base. While examples are used for descriptive purposes, there is no intent to compile a definitive list of library systems offering reference service. Unfortunately, it is impossible to evaluate the quality of service or to analyze it in terms of cost because pertinent facts are not available. Much of the information incorporated in this article was supplied by individuals associated with the major library systems in the country. A bibliography is provided to identify printed sources of information about many of the projects mentioned.

Reference service is one of several activities conducted at the user-library interface. Traditionally, it has been a personalized service where the reader explains his need to a librarian who in turn helps the reader identify and obtain the object that contains the required information. Less frequently, the information is actually assembled or compiled by a librarian and turned over to the reader. It is interesting to note that in regionalized service, this personal quality is often maintained by keeping the reference librarian who was involved in the initial contact actively in the regional network. Most regional reference centers serve libraries, not individual readers. In this sense, regional reference service is as much for reference librarians as it is for readers.

One further point will help to characterize regional reference systems. Since reference service is essentially a means to an end, it is not surprising that there exist only a few systems designed to provide reference service alone. More frequently, reference service is one of the full range of library services provided by a system. In fact, refer-

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ence systems often expand to become systems offering many library services.

The subject scope and the depth and limitations of reference service provided by a system should be noted as distinguishing features. In some instances, a system is established to accomplish only one facet of reference service, such as locating a specific item. To this end, the National Union Catalog, the regional bibliographical centers, and union lists of serials have been developed to record the holdings of a number of libraries.

In other cases, the subject scope of the reference system is restricted, rather than general. For example, the reference service provided by the Engineering Societies Library in New York is actually a system service, in this case designed to meet the requirements of individual members located throughout the country.

Another example of limited service, this time focused on a format category, is that offered by the twelve Regional Technical Report Centers established by the Office of Technical Services. Still in the formative stage, the centers have thus far concentrated on building and organizing collections of technical reports and on making them available to scientific and technical research workers in areas usually composed of three or more states. It is almost certain that the identification and location activities which now dominate report center reference work will soon expand to include comprehensive literature searches. Since records pertaining to technical report literature will most probably be one of the first large categories of bibliographic information to be stored on magnetic tape, it is possible that the reference activity of searching the report literature will be one of the first reference operations to be automated.

The element of depth, or comprehensiveness, of library service is the characteristic that determines kinds of use and the users. Most regional systems now providing reference service in a wide range of subjects are operating at most on a middle level. This level of service could be characterized as that which one might expect from a public or academic library of at least 100,000 and perhaps as many as 500,000 non-fiction titles. Aspirations to provide comprehensive service like that found in large academic libraries and in a few public libraries are occasionally voiced, but seldom achieved in most general systems. Comprehensive service is more common in systems focused on a narrow subject range.

The most obvious, although still unrealized, exception to this gen-

eralization concerning comprehensive service is New York State's Regional Reference and Research Library plan.[1] Designed to complement the country's most sophisticated operating program of regional public library systems, the "3-R" plan is proposed for the specific purpose of making comprehensive reference service available to individuals in all parts of the state. If the project receives the required financial support from the legislature, it will possibly set the standard for generally accessible research library service for the country at large.

The recently inaugurated Pennsylvania plan [2, 3] incorporates elements that should result in a high level of reference service for state residents as the state aid program established in 1962 begins to have an impact on library development. In this program, local public libraries may affiliate with one of thirty districts, each centered on a designated district library. Each district library receives state financial assistance to provide specific services, one of which is "walk-in" or telephone reference service, to all readers and libraries in the district. Supplementing district libraries, four regional resource centers have been designated to develop definitive collections of reference materials in selected subject areas to serve the specialized research needs of all Pennsylvania citizens, both through on-site use and through interlibrary loan.

The centers include the State Library at Harrisburg, the Pennsylvania State University Library at University Park, The Free Library of Philadelphia, and the Carnegie Library of Pittsburgh. With the exception of the State Library, each regional library received $33,000 in state aid in 1962. The thirty district libraries received over $473,000, and 230 local libraries were provided over $930,000 from state funds.

One of the most uncomplicated organizations for statewide reference service involves only local libraries and a single central library. Here, the local library (and in some instances, the individual reader himself), turns directly to the state library for supplementary service and resources. New Hampshire [4] is an example of this basic, and apparently efficient, approach. Local libraries send reference inquiries to the 400,000 volume State Library where four full-time reference librarians process up to sixty reference requests daily. An estimated 50 per cent of the state's 232 libraries use the service frequently and another 25 per cent do so occasionally. Direct service is given to individuals served only by small libraries operating on limited schedules. The State Library maintains a union catalog of holdings of the larger

public libraries and borrows books from these libraries, as well as the University of New Hampshire and Dartmouth College, for reloan.

The New York State complex of twenty-two regional public library systems is further developed and better supported from state funds than any other. While the regional systems vary in size, all have as their hallmark coordinated programs to supplement local library operations. An example is the Nassau Library system,[5] which includes forty-five of fifty-one public libraries in the county as members, and serves a population of more than 1,120,000. Total annual circulation by member libraries is nearly 8,000,000 items.

The system reference service includes an inter-library loan operation, use of a central reference collection, and telephone reference service. The reference collection includes about 17,500 volumes in a service center and another 15,000 volumes divided among five public libraries functioning as subject centers. Over 5,700 items were circulated from the central reference collection to member libraries during 1962. An additional 4,500 items (of 7,900 requested by teletype) were provided by the State Library. A telephone reference service for member libraries provided answers to more than 2,000 questions during 1962. Preparation of selection guides and organization of rotating collections of foreign books are examples of other types of system reference service. In all, 14.3 per cent of the system budget goes for reference service.

Systems established to provide only reference service have developed in several areas of the country. These are generally financed, at least in large part, by Library Services Act funds. The first objective of projects of this type is to extend reference service on at least a basic level to residents of predominantly rural areas. In some cases, reference service is regarded as the first step towards full service operations.

Three examples of regional systems of this type are described below. Each varies in detail; all have been in operation only two or three years; and accomplishments are as yet difficult to assess.

The first is the Regional Reference System—Wausau (Wisconsin) Area.[6] Now in its second year of operation, the system has twenty-three libraries participating, with the Wausau Public Library serving as the regional center. Focused for the present only on reference service, this is a pilot project for a potential statewide complex of full service systems recommended in the report, "A Design for Public

Library Development in Wisconsin," published by the Wisconsin Free Library Commission in 1963.

The objectives of the system, which serves a population of about 320,000, include the creation of a regional reference center at Wausau, demonstration of a cooperative reference system, provision of reference materials by strengthening and enriching existing collections in all libraries, the development of procedures for referral of questions and inter-library loans among all types of libraries in a statewide reference system, and evaluation of the pilot project to aid in planning similar centers elsewhere in the state. Monthly workshops have been held during the past year, principally to instruct staff members of libraries in the region on reference sources. Book selection consultation service has also been provided to member libraries.

The Wausau system is of special interest because it is also being used as a source of information for a comprehensive study of Wisconsin's resources and requirements for reference service now being conducted by the Library Research Center of the University of Illinois for the Wisconsin Free Library Commission. The results of this work should be available early in 1964.

A second example of this type of regional reference system is the Denver-Tri-County Reference Service Project, known as JADA library service.[7] (The name is an acronym of the initial letters of the names of the four participating counties.) Like the Wausau project, the JADA service is funded by the Library Services Act. An initial budget of $50,000 was set up to provide for the demonstration period. The budget for 1963 was $14,500. The Denver Public Library serves as the resource library for the system, and reference calls go directly to the subject departments of the Library. A clerk-driver, employed by the system, is responsible for the material handling and delivery aspects of the system.

Initially, a maximum of 5,880 units of service per year (a unit is a book, a reference question, or duplicated reference material) were to be provided system members by the Denver Library. However, soon after the project got underway, it became evident that the expanded reference service was generating more demand for books. In August 1962, the plan of the project was amended to provide some author-title requests on inter-library loan, and for the 1963 calendar year, the limit on titles that could be borrowed from Denver was removed. To take some of the pressure off Denver, a "round-robin" search procedure

among the member libraries was established for some categories of titles. This approach has produced about fifty books per month. The Colorado State Library searches daily for requests not filled by the Denver Public Library. During the first four months of 1963, a total of about 400 books per month was delivered to the nine municipal and county library units from the Denver Public Library. The monthly average for the first year of operation was 180 and for the second year about 260.

The JADA project has generated a number of inter-library activities. A grant made to the JADA Library Service Committee is supporting a self-study of metropolitan Denver library service. The example of coordinated effort has also sparked the establishment of countywide library service in Arapahoe County through contract with three public libraries located in the county and a bookmobile owned by an adjacent county system. Although the demonstration period is as yet not completed, it is evident that what started out to be a regional reference system is in fact moving toward a more comprehensive approach to regional library service.

The San Joaquin Valley (California) Information Service (VIS)[8] has been in operation since May 1960. Library Services Act funds supported the project during the first three years, but from July 1963, the service to six central California counties continued with local support. The director, a reference librarian, and three clerical assistants are located in the Fresno County Library. Reference questions not answered on the local or district library level are mailed or, when speed is important, are called in to the Fresno County Library on an unlisted number. Information is sometimes supplied to the patron directly by telephone or by mail. Requests for information, however, are accepted in the Fresno center only from libraries.

VIS handles as many as thirty-five questions daily. No analysis has been made of the composition of the group of patrons or of the information requested, but the largest number of requests are generated by businessmen. A smaller number call for vocational or educational information, or information pertaining to home improvement and hobbies. A lesser number of questions are prompted by research. The center has promoted its service to business and government. VIS makes an effort to provide extensive reference service in all subject fields except technology, medicine, and law. Only inquiries related to student assignments and certain other obvious categories are excluded. Free photo copies of pertinent information are provided the

patron. A reference in-service training program, consisting of both workshops and a correspondence course, has been conducted for assistants in many of the participating libraries.

The several organizational forms for providing regional reference service have been identified by the examples in the preceding paragraphs. In large part, the systems supported by public funds have as their principal objective the provision of reliable middle-level service to individuals who do not have ready access to a substantial collection such as might be found in most larger cities of the country.

Because the provision of library service "by system" is a process still in the early stages of development, both the concept and the methodology are difficult to assess. It does seem essential, however, that librarians charged with administering or developing library operations on a system basis should pay special and continuing attention to the analysis of costs of services rendered in all segments of their system activity.

A second area calling for critical research involves the relationship between the theoretical service capacity of system resources and the kinds and amount of actual use made of those resources. Such a study might provide valuable information about the effect of system service in various fields and at different levels of comprehensiveness. The virtues of "systems" have been thus far taken pretty much on faith. A critical evaluation of all aspects of library system operation is essential at this time if full value is to be received for the library dollar spent in this country during the years ahead.

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Automation of Reference Work

CLAIRE K. SCHULTZ

THE EQUIPMENT NEEDED to automate reference work existed years before anyone tried to apply it. Perkins' patents, which led to the development of edge-notched punched cards, were issued in 1925 [1] and 1929; [2] Taylor, who is nationally credited with patenting the peek-a-boo principle, received his patent in 1915; [3] Hollerith developed internally punched cards and a sorter for them in preparation for the U.S. Census of 1890. The failure to apply this equipment indicated that librarians did not feel the need for automation until the 1940's, when experimentation with automation began. What, then, was the need which precipitated activity in the automation of reference work at that time?

Research information used to be published in books; however, because book publishing was too time-consuming for the articles to be of value, most research information came to be published in journals and reports. The increase of such articles necessitated up-to-date indexes to them. Until recently, however, indexes to these publications have been notoriously late in being issued. In addition, more flexible indexing approaches than those found in card catalogs or published indexes were needed. No matter how indexes or catalogs were arranged physically, questions always were asked of them that were difficult or impossible to answer in terms of the system used.

The reference librarian became progressively more sensitive to the inadequacy of his tools. The search for more adequate tools began in industrial libraries where librarians conducted the most specialized and intensive reference work for researchers.

The search led first to punched cards. In the mid-1940's several kinds of punched-card equipment were available. In addition, the

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Rapid Selector, based on the peek-a-boo principle, had been developed experimentally. This system, in which the codes assigned to indexing terms were recorded on rolls of film, provided a comparatively rapid method of searching for documents and printing out, from the film, copies of documents selected. Compared in cost and speed to edge-notched card systems, it was the "giant" equipment of the day. However, during the long development of the Rapid Selector, persons needing nonconventional indexing media became interested in manually operated card systems. These were either edge-notched systems such as those supplied by the McBee [4] or Zator [5] Companies, or the Uniterm System [6] introduced by Taube about 1950. Also beginning about 1950, IBM and Remington Rand punched cards were used by a few groups.[7] These were sorted by either a standard sorter or a program-controlled selective sorter.

An evolutionary pattern of development can be traced from punched cards to computers. The principles used in the application of edge-notched cards also were used in internally punched cards, except that with punched-card sorters more of the process could be automated. In addition, the internally punched cards made certain things feasible that were not feasible under less automated conditions, just as search methods not feasible with the card catalog are achieved simply with edge-notched cards. Introduction of the IBM 101 Electronic Statistical Machine around 1950 made selective sorting more powerful. With the 101, one could get not just all of the "nines" in the nine pocket and the "sevens" in the seven pocket; one could also direct cards into a particular pocket if all of several punches were present in a card. This ability was coupled with that of specifying certain patterns of cooccurrence of indexing terms, and dropping variations into different pockets. With computers, versatility and speed of selective sorting can be extended, and beyond that, a record can be maintained of what was done and what result the sorting produced. With each new generation of computers, sorting processes are speeded further, and thus more automation is made feasible.

Principles and Tools

INVERTED VS. NONINVERTED METHOD

The peek-a-boo principle of searching required storage-file arrangement different from that of other punched cards. The kind of filing used with peek-a-boo and Uniterm systems came to be known as the

inverted method. Inverted systems employ an indexing term as the unit record and display on the record a code for each document to which that indexing term applies. This method is like that used in the card catalog, where all pertinent document references are filed under the subject heading that applies to them. With both edge-notched and internally punched cards the document is the filing unit; the record for any document contains all of the indexing terms as well as any other pertinent data. The latter types of card systems produce one record per document, whereas peek-a-boo systems produce one record per term in the indexing vocabulary. Inverted systems are updated by adding new unit records. Inverted systems provide "random access" to stored information in that the user can choose an indexing term or group of indexing terms at random, locating them by means of the alphabetically filed unit records.

In contrast to inverted systems, noninverted systems usually are unordered and require total scan of the file, record by record, to locate desired information. Practical applications of inverted systems are limited by the number of document codes that can be stored in a single unit record because matching becomes involved if more than one card per term is to be matched. Noninverted systems do not require posting or file insertions; all additions are made by new records at the end of the file.

Whether or not the file is inverted is a mechanical consideration, important to the efficiency of the system, but of little importance to the intellectual aspects of reference work. In contrast, the freedom of rearrangement provided by all punched cards is highly important to the quality of reference work. Coordinate indexes are more amenable to rearrangement than are indexes with indented subject headings; thus, with appropriate insight, system designers have combined the advantages of coordinate indexing with those of punched cards.

THE THESAURUS

Quality of automated reference service is directly dependent on the system's authority list or thesaurus. Librarians understand that a card catalog cannot function effectively unless an authority list is maintained for catalogers and indexers and unless the cross references established are made available to the catalog users. The authority list in automated systems customarily is called a thesaurus. It may justifiably be called by this different name because a thesaurus contains some features not found in the usual authority list.

A thesaurus should include the terminology that represents the subject matter of interest to the users of the system in which it functions. It should not contain terminology chosen systematically for "all of knowledge" as the Dewey Relative Index does, but it should include terminology established empirically, that is, according to its use in documents and questions. Terms should be included according to the degree of specificity that will make the indexing most useful. One can determine the degree of specificity empirically by studying how questions are asked, for example.

In the thesaurus, similar and related terminology are cross referenced so that the documents indexed are most accessible. Cross referencing is like that in a conventional authority list, except that the most desirable cross references to use can be determined by statistical analysis. Entries in the thesaurus should be arranged so that they will be used consistently and can be accessed from the storage file efficiently. For example, entries in both the ASTIA Thesaurus [8] and the Medical Subject Headings of the National Library of Medicine [9] are arranged both alphabetically and categorically. Because such thesauri contain no overall structure of arrangement as in the Dewey system, the thesaurus user cannot take for granted that general-specific relationships have been incorporated. For that reason, the general-specific relationships among terms are made much more explicitly in a thesaurus than in an authority list.

SEARCH STRATEGY

Search strategy is involved every time a search is performed, whether it is done manually, with punched cards, or with a computer. Knowing how to start, what to do next, and how to separate the relevant from the irrelevant, is part of the built-in equipment of the reference librarian. The ambition to transfer these abilities to automated equipment has made system analysts aware that the decision process of the human being had to be objective, deliberate, and machine-like.

A librarian begins to develop a search strategy when she receives a request for information. Suppose, for example, a little boy asks a children's reference librarian, "What do you have on pets?" She would immediately suspect that the boy was not interested in all possible pets, and she would probably ask questions to discover his more exact interests. In the system designer's language, when she does this she is performing feedback; she is also establishing some of the parameters of the search. Let us assume that at the end of the feedback process

she knows that the little boy is interested only in how to keep a kitten. She might supply the answer to this question by producing a book she has right at her fingertips; for the sake of the example, however, let us handle the question as if it were a research request.

The librarian might divide the question into "care and feeding of kittens" and "having fun with kittens." This is part of the process of translating the question into the terminology of the system; the reference librarian is a very important part of the system. Consulting the card catalog (which also functions as her authority list) she finds that the subject heading *Kittens* says, "see Cats." After proceeding to *Cats* she finds it subdivided; she chooses the pertinent subheadings and finds about twenty apparently suitable references. From these references, she intuitively selects one or two books and sends the boy on his way.

If this had been a true research question, the librarian might have reviewed the method by which she selected the two books. Did she locate *all* of the pertinent material from which to choose? For example, perhaps a book on pets in general would have a chapter on kittens more useful than the material she actually gave the boy. If she found little under *cats,* she probably would have looked under *pets,* but she risked missing some references and did not look under the general heading. The cataloger could have obviated the question of whether or not all pertinent references had been obtained by having indexed the book on pets under *cats.*

In the human procedure, then, are many uncertainties, many steps in answering even a simple reference question, and many decisions to make. These all become important when the procedure is mechanized.

Some of the processes the reference librarian just performed have been automated. Equipment capability for a potential system plays a large role in the amount of the procedure that can be automated. The power of the system also is dependent on the search strategy developed for it. A weak strategy can be applied to a powerful computer, for example. In general, the more capable the machine, the more sophisticated the search strategy can be. In the following paragraphs each part of the search process is explored, and the degree of automation, to date, for each of the parts is described. It should be pointed out that this paper cannot discuss military systems that are classified. Also, certain systems are singled out for discussion because they represent either very large collections or because they seem to be leading the state of the art.

INPUT

Input starts with receipt of the question. The only automation of this has been by means of intercommunication such as mail delivery, telephone, personal secretary, and the like. In some instances indirect communication hinders rather than helps the procedure; if so, it is undesirable automation. At some point, a human being must receive the question for further handling. If there is a feedback process to establish additional parameters for the question, this, too, must be done by a human being. Translation of the question into the language of the system, that is, establishing what is wanted and the terminology to be used for finding it, is done by a human being in most cases. In one system, MEDLARS, (National Library of Medicine, Medical Literature and Retrieval System) the computer helps determine the terminology used to refine a search as it progresses.

After the terminology has been established, the logical connectives that are to be used among the terms must be determined. Logical connectives were used by the reference librarian who found books on kittens for the little boy, but their use did not have to be made explicit. If that same question were asked of a librarian using any mechanized system, even if it were as simple as a peek-a-boo system, the formal logic of searching would become more apparent. For example, to find an answer to the little boy's question, the librarian cannot search at the same time for both *cats* AND *pets,* because (assuming a peek-a-boo system) if two cards were held to a light source to discover what they had in common no matches might result; at best, only those references on *pets* that were also about *cats* would be indicated. All references on *cats* that were not also about *pets* in general would be missed. If the librarian wants to know which books on either *cats* OR *pets* discuss playing with cats, he can match the card for *cats* with the card for *play.* In this system the *or* relationship was established by searching for two *ands*: *cats* AND *play; pets* AND *play.*

To demonstrate how *not* might enter into a search, assume that *kittens* would be indexed in the peek-a-boo system separately from *cats.* In the thesaurus, in this case, the entry for *cats* would read, "See also kittens." In the example, information is wanted that is specifically about feeding kittens and *not* cats. (The librarian is looking for diets for young rather than adult cats.) With the peek-a-boo system this information is searched for by matching the cards for *kittens* AND *feeding* and recording the document numbers common to both cards.

Then *cats* AND *feeding* are matched and the matching document numbers recorded. The document numbers common to the two matches presumably should be excluded, but this presumption is fallacious. The same book may have a chapter on feeding cats and one on feeding kittens; if so, and the reference is categorically rejected because it is about feeding cats, pertinent information about kittens is being lost. For that reason the logical connective *not* is seldom used in machine searching. In some cases, however, this kind of undesirable effect would not occur and *not* could be used to advantage.

In the mechanics of search, in the preceding example, *or* and *not* were derived in terms of *and*. These mechanics are followed in all mechanized systems, even computers, although such derivation may be obscured when one is unaware of the procedural steps. The logic of search is very simple: no matter how a question is expressed it will eventually be answered by systematically inserting *and* among all of the search terms involved.

Suppose the little boy in the example wanted to know whether feeding potato chips to kittens would harm them. Assume that both *potatoes* and *kittens* are accepted terms in our peek-a-boo system. Assume, too, that when *potatoes* AND *diet* AND *kittens* are searched for, no pertinent references are found. Reference librarians would not stop searching at this point; they would broaden the search with the hope of finding pertinent material. One way to broaden the search is to delete a search term; perhaps searching for *potatoes* AND *kittens* would be productive, or, more likely, *diet* AND *kittens*, since material on diets for kittens could be scanned for information about feeding kittens starches and fats. Another method of broadening the search, instead of dropping a term from *potatoes* AND *diet* AND *kittens*, is to substitute a general term for one of the specific terms: *starches* for *potato chips*, for example.

Edge-notched and peek-a-boo systems always need the human operator to do this kind of broadening. Internally punched card systems, if they use equipment as capable as the IBM 101 Electronic Statistical Machine, can do a little of such broadening automatically, through a plugboard wired for alternative searches to be done during one pass of the cards. For example, references indexed by *kittens* AND *diet* AND *potatoes* are programmed to be sorted into a particular pocket; references indexed by just *kittens* AND *diet* in another; *starches* AND *diet* AND *kittens* in another; and so on. Most computer systems for automating reference work have been designed to accomp-

lish approximately the same thing. Their greatest difference from punched-card systems is that they can search faster and can be programmed for more alternatives at the same time. Larger computers, however, may be programmed to have access to a thesaurus that defines for the computer terms that will broaden or narrow the search. Of the present systems, MEDLARS is the only one to incorporate this feature.

A search can be narrowed by either substituting more specific terminology, as was just discussed, or by adding more terms to the search. To date, the latter procedure must be done by humans; if it is anticipated that the search may need to be narrowed, the reference librarian specifies alternative searches containing the additional terms.

If it is anticipated that the system will produce too many references in answer to a question, the number can be decreased by narrowing the search as just described or by other methods. In the example about the boy, the reference librarian found twenty books on how to keep a kitten. By some intuitive process, which the state of the art has not yet defined, she was able to choose two which she presumably thought most suitable to give to the boy.

Most automated search strategies have not attempted to deal with the problem of limiting the output, because it is an unchartered process. MEDLARS has made a first step in solving the problem arbitrarily. Before the search is begun, the MEDLARS client is asked to state whether he desires a few (1 to 10), a moderate number (11 to 100), or many (101 or more) references. The system is programmed to comply with his wishes by every other means of search strategy previously discussed; if more references result than is desired, the computer is instructed to print out only enough of the most recent references to fulfill the search requirement.

Still another way to reduce the output is to design the system so that indexing terms point out whether a document is a review, a textbook, a report, or is in some other bibliographic form. When the system is so indexed, the client can ask, for example, only for reviews on the subject in which he is interested. The MEDLARS system makes use of this technique. Because only a few of the indexing terms assigned to a document are used in preparing their published indexes, the DDC (Document Defense Center, formerly called ASTIA, Arlington, Va.) and MEDLARS staff weight their indexing terms. The terms chosen for publication are supposedly the most important ones to have been assigned to the document; the additional (nonpublication) in-

dexing terms are used only for searching within the computer system. The two kinds of indexing terms are distinguished by a label. To limit the number of references retrieved, terms labelled one way or the other can be specified when the search is formulated.

Preparing a question for processing involves still more considerations. How soon is the answer needed? Reference librarians assign priority ratings to search requests and process them sequentially. Computers usually can process batches of questions; even with computers, however, it is important to know whether routine or nonroutine scheduling is needed. Are foreign-language references wanted? If each article has been indexed by language, a sorting device of any kind can be used to include or exclude particular languages. Can a date range for the search be set? For example, does the client want only recent material, or is his subject one of recent origin? If references are added to the file in serial order, or if the date of the document can be accessed by the system, then date ranges can be imposed for the machine search. What form should the output have? For example, does the client want a bibliography, a group of abstract cards, or photostatic copies of the documents for which references are retrieved? If he wants a bibliography, does he want it arranged by date, subject, author, or language? In a system where one has choices in these matters, the choices must be made explicit before the computer search is begun.

PROCESSING

One of the first decisions a reference librarian must make when processing a search is where to look first; it is probably more efficient to start with one source than with some other. An analogous situation is sometimes found within a file or set of files available to a computer system. If the system uses noninverted filing, that is, the indexing for each document is stored as a unit within that file, the search always starts at the beginning and proceeds to the end of it. If inverted filing is used, that is, storage is arranged according to the entries in the thesaurus, then only the term records pertinent to the batch of questions must be searched (but in a stepwise fashion that is sometimes deceptively long). In an inverted system, it is most economic to find the least heavily posted of the required search terms for a particular question and to match the next most heavily posted term against it. This procedure ensures a minimal number of comparisons by the computer and thus makes the search faster and less expensive. The DDC

system has an inverted file but does not make use of the latter feature at present. The MEDLARS system uses a noninverted file for storing reference citations; however, MEDLARS makes use of features of both approaches to file organization by maintaining a running index to the file; the index is maintained according to the arrangement of the thesaurus. As additions are made to the file, each term is checked against the thesaurus and the index is updated to maintain a tally of how frequently each term has been used. As a first processing step for a search, then, the magnetic-tape index to the file is consulted to rank the specificity of each of the terms for the search. This statistical information is used to develop the processing formula for the noninverted file; that is, only a document record that contains the least-posted search term (for each question in the batch) will be examined to determine whether other required terms are present; for some searches use of the index reduces search time to a small fraction of what it would be without the index.

During processing of input information, the reference librarian frequently finds that the search parameters supplied by a client are not precise enough to obtain a satisfactory answer; or, an interesting tangent can develop during a manual search that is judged to be worth pursuing further. In either case the reference librarian can be more effective if the client is informed of these developments. Can a computer be programmed to react to such situations? Theoretically, yes; but in practice little of such programming is done, except to set up alternative searches to pursue tangents that can be envisioned in advance or to formulate new questions for the next computer run on the basis of references located.

OUTPUT

The output from peek-a-boo systems is a set of document numbers. From edge-notched cards, one usually obtains a full citation which has been written on the face of the card and either must be read directly or copied manually or photographically. Almost all internally punched card systems yield a number, such as a class or serial number, which must be looked up to get more complete information.

Computer systems can produce almost any kind of output that a client could desire, if the system is so built. In most systems, however, only one or two output formats are feasible, such as a list of document numbers or a list of alphabetically arranged references. To design a system so that only document numbers are given to the client seems

a misuse of both the system and its clients. A few systems have tried giving abstracts that had been stored on magnetic tape, but have found this uneconomic. As a substitute, DDC and other systems retrieve document numbers from the computer and then manually extract the correspondingly numbered abstracts from a printed-card file. When photostatic copies of full documents are supplied, the same process as for abstracts is usually followed; that is, the references are retrieved by computer, and the documents or their film versions taken from the shelf and copied by equipment independent of the computer.

MEDLARS plans to supply bibliographies complete with author(s), title, source, date, and language directly from the computer. This is a two-step process. First, document numbers are retrieved through a tape file of indexing terminology arranged according to document; after the pertinent document numbers have been located and recorded, the file containing the complete citations is searched for the remainder of the data. MEDLARS offers a number of choices for arrangement of the bibliography. It can be grouped by author, title, source, date, or language. In addition, the bibliography can be printed in a wide variety of formats.

State of the Art

The MEDLARS system design [10] incorporates the most advanced search strategy for automating reference work to date. Also, from an engineering standpoint, it has advanced the art by sponsoring the development of computer-driven equipment that can compose rapidly (440 characters per second) by optical means; the product of this equipment is at least as good as that usually provided by typesetting. Thus reference librarians will find indexes provided through this system more legible than those provided by a system using a conventional high-speed printer.

Most nonconventional systems used to automate reference work employ punched cards rather than computers for information storage and retrieval.[11] Such systems usually contain fewer than 50,000 documents. This number is not a large reference store or reference potential; however, if all such retrieval systems were compatible and covered different material systematically, they could then be linked to form a network. As one might expect, however, because they are experimental systems, they are highly disjointed and incompatible. Experience gained with these systems will prepare their designers, operators and, to some extent, their clients, for more sophisticated systems.

If the individual systems continue to grow, the volume of documents accumulated will require more powerful searching methods and equipment. If the need for so many more or less duplicating systems (as are found in libraries of competing companies in the same industry) disappears, the more powerful methods and equipment of centralized information centers will replace them. The few computer applications thus far designed for automating reference work are leading the way to future development.

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Interlibrary Loan: A Reference Service

MICHAEL M. REYNOLDS

ROCKED BY THE MOUNTING shock waves of the explosion of the material and service expectations of the library user, the practitioners of interlibrary loan in the traditional manner are digging in behind their policies. As a consequence, one of the most important, implied obligations of the library—providing the most effective access to information—is slighted, as the borrower will not and cannot borrow and the lenders will not lend.

Interlibrary loan is a technique by which one library lends material indirectly to an individual through another library. In essence, therefore, it is merely a means through which a library may broaden its lending service to include those materials which are made available by other libraries. The technique of interlibrary loan, of necessity, entails a lending operation, but regardless of where the actual work is performed—circulation, acquisitions, etc.—the principle involved is one of reference: that is, to provide the library user as completely as is possible with the material he needs.

As a library activity, interlibrary loan should not be viewed as constant and unchanging but rather as a manifestation of a principle existing along the continuum of library development. To write a documented history of interlibrary loan would be extremely difficult; while it might add a certain historical prestige to trace its development back to a traffic in clay tablets or incunabula, and to indicate variations in the purposes and techniques of the transactions, the principle was the same then as it is today. The purposes for which one library will make available its material to another library, the scope of what materials are made available, and the techniques by which materials are made available are reflections of the society itself, when viewed against the totality of the social environment.

In the rapid development of libraries in Europe during the nine-

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teenth century, quite naturally the European concepts of interlibrary loan reflected the exclusive characteristics of European society and the medieval idea of the community of scholars. In this community each member felt a certain duty, and not a little pride, in making his own or another's work available to a serious fellow scholar. The public and academic librarians of the late nineteenth century in America saw that, "it would add greatly to the usefulness of our reference library if an agreement should be made to lend books to each other for short periods of time," [1] and they translated the European practice of restricted loan into the American idiom. The purpose of interlibrary loan as expressed by the 1917 A.L.A. Code for Interlibrary Loans was: "(a) to aid research calculated to advance the boundaries of knowledge by the loan of unusual books not readily accessible elsewhere, (b) to augment the supply of the average book for the average reader, . . ." [2] This attitude was certainly in keeping with the prevalent concepts of libraries as being active participants in the American educational process and the librarians' responsibilities as extending beyond a puerile guardianship of the physical books entrusted to them.

Yet interlibrary loan was never expected to result in an unrestricted flow of materials between libraries. Certain types of library materials like manscripts and rare books, by their nature, were excluded from interlibrary loan. Others, like current issues of serials, low cost in-print books, and newspapers, were declared off-limits unless special arrangements were made. Besides these restrictions on types of matrials, and the additional legal and budgetary limitations in which libraries operated, the three basic tenets of interlibrary loan have defined it as ". . . a courtesy and a privilege, not a right, . . ." to be used ". . . for research and serious study, . . ." with the understanding that the lending library owed its first obligation to its ". . . primary clientele." [3] The "courtesy and privilege, not a right" relationship placed the responsibility of the inconvenience squarely on the borrower; the "research and serious study" clause was expected to deter the ordinary request for material not immediately available; and the position each library took to preserve the rights of its "primary clientele" acted further to restrict the traffic and added an uncertainty to the request for loans. Restrictions notwithstanding, an experienced interlibrary loan librarian with an explanatory note on his request form and a wide acquaintance with his counterparts, could, when working within the clear and grey areas, eventually fill over ninety per cent of the requests.

The Library of Congress, emerging as a truly national library, epitomized the operating attitude of American libraries when, at its formal inception of the system in 1901, its information circular advised: "Under the system of inter-library loans the Library of Congress will lend certain books to other libraries for the use of investigators engaged in serious research. The loan will rest on the theory of a special service to scholarship which it is not within the power or the duty of the local library to render. Its purpose is to aid research calculated to advance the boundaries of knowledge, by the loan of unusual books not readily accessible elsewhere." This was, however, tempered by the consideration that "To a library the need expressed is the best claim and credential." [4]

As only a few institutions could boast of libraries adequate to meet the demands of the new investigative techniques in the historical and social sciences, the volume of interlibrary loan increased slowly during the late nineteenth and early twentieth century. Well into the twentieth century researchers continued to cluster in the book centers, buy their own books, or make annual hegiras to major collections. By 1917, however, the demands of interlibrary loan had reached a point where it was felt advisable that an ALA committee draw up a code of practice for interlibrary loan and define its purpose, scope, and limitations.[5] The 1917 Code, with the later Interlibrary Loan Code of 1940 [6] and the Interlibrary Loan Code of 1952,[7] were intended to act as general guides. Within communities, regions, or special subject areas, interlibrary loan practices were expected to be of a more informal nature.

If the world at the turn of the twentieth century had changed only in degree and not in kind, lending books "at a distance" would have continued as an occasional disruption in the operation of a library. However, concurrent with the new technology that was able to request and deliver within days was a multiplicity of other factors which had immediate ramifications for interlibrary loan. Among these were the growing number of researchers, as seen in the increase in masters' and doctoral degrees awarded, the development of tools with information about the collections of other libraries, the broad expansion of research in the social sciences and humanities, and the explosion of research in the pure and applied sciences.

In 1876, when Green's letter to the editor of the *Library Journal* on interlibrary loan was printed, 835 masters' degrees and 31 doctors' degrees were granted in American colleges and universities. By 1924,

the number of doctors' degrees was 1,098 while in the same year 8,216 masters' degrees were earned. In 1940, the year of the revision of the 1917 ALA Code, 26,731 masters' degrees and 3,290 doctors' degrees were conferred. By the year of the next revision of the interlibrary loan code, 1952, the figure had risen to 63,587 masters' and 7,683 doctors' degrees. Projections for 1963 indicate that there will be approximately 83,700 new masters' and 12,300 doctoral degrees, and that by 1970 these will be 139,000 and 18,100 respectively.[8]

The printed library catalogs of the nineteenth century like the *Catalogue of the Library of the Boston Anthenaeum* and the *Catalogue* and *Second Catalogue of the Library of the Peabody Institute of the City of Baltimore* had exposed the holdings of a few significant libraries. But it was not until the Library of Congress Card Division under Charles H. Hastings began its work of distributing copies of printed cards in 1901 that a national system of bibliographic control over library resources began to be realized. To facilitate service, the Card Division made available proof sheets of the catalog cards and established depository catalogs of its printed cards strategically throughout the country. At the same time the Library of Congress began to exchange cards with the New York Public Library and with other large libraries which were also printing catalog cards [9] and to print catalog cards from copy supplied from other governmental libraries. Even before the printed Library of Congress *Catalog*, the then Superintendent of the Library of Congress reading room, F. W. Ashley, wrote, "Our acquisitions are known in Seattle long before our own local readers get word of them through any advertisement in our public catalog." [10]

The first major nationwide union list of serials to include holdings was Henry C. Bolton's *Catalogue of Scientific and Technical Periodicals,* representing 127 American libraries. Nine years earlier in 1876 Johns Hopkins University had issued a *Checklist of Periodicals, Taken at the Following Institutions in the City of Baltimore: Library of the Johns Hopkins University; Library of the Peabody Institute; Mercantile Library; Germania; Medico-Chirurigical Society; Library of the Maryland Institute; Library Company of the Baltimore Bar;* this was the first to indicate resources regionally. By 1931, in the apogee of locational tools for serials, *The Union List of Serials in Libraries of the United States and Canada,* Haskell was able to cite some eighty published American union lists of serials and newspapers.[11] Since then the publication of regional union lists of serials has been especially

notable, ranging from the broad subject and geographic areas covered by a Southern Regional Educational Board's *Southeastern Supplement to the Union List of Serials* to a more restricted U.S. Bureau of Ships Technical Library's *Union List of Serials in Naval Libraries of the Washington Area.*

The regional union catalog as a bibliographic device found its greatest growth in the period between 1930 and 1940. Whereas the National Union Catalog provided the location of library resources nationally, these regional catalogs were confined to a more restricted geographic area such as a city, county, state, or a region. As Downs says in his discussion of union catalogs, the availability of free labor from federal relief agencies during this era gave the union catalogs a great impetus.[12] The variations between the theoretical extremes of bibliographic centers and union catalogs naturally result from differences in the functions they are organized to perform. Bibliographic centers such as the Philadelphia Bibliographical Center for Research have their own staffs and book collections. Their work might include servicing a union catalog and a collection of bibliographies in order to provide location within and outside the distinctive region, relaying interlibrary loan requests directly, verifying cataloging and acquisition data, preparing author or subject bibliographies with notice of availability within the region, and reference research work.[13] A union catalog, such as the Ohio Union Catalog, has as its primary function that of providing a record of the location of materials. Services beyond this take it into the scope of the bibliographic center.

However effective national or regional union catalogs and union lists might be as enterprises for obviating the purchase of low-frequency use books, facilitating acquisition or cataloging activities, and reducing the degree of duplication in types of materials and areas of collecting, their principal purpose is to provide the means to locate and supply the book within the system with the least possible delay.

With the Library of Congress *Catalog of Printed Cards, The National Union Catalog, The Union List of Serials,* regional union lists of serials, union catalogs, bibliographies controlling other groups of material such as microfilm, dissertations and state publications, and bibliographies and abstracts providing intensive coverage within subject areas, the basis for a high degree of success in filling requests for interlibrary loan has been achieved. For those who can afford the tools, it is now possible to sharpshoot instead of "buckshoot."

To such bibliographic controls, add the finite character of library collections and the mounting number of library users, most of whom are familiar with the possibilities of interlibrary loan and who see in it an ordinary extension of library service; the result is a theoretically infinite increase in the provision by one library of materials from other libraries.

Interlibrary loan by its nature, as an activity called into being by budgeted organizations to overcome the factors of need and distance, engendered problems. Much of the literature on interlibrary loan dealing with these problems is synthesized within the three interlibrary loan codes. They can be divided into two categories. The first is concerned with the pros, cons, and definitions of lending for serious work by serious scholars and the fact that the burden of interlibrary loans is carried by the larger libraries. The second category of problems deals mainly with the mechanics of the transaction—costs, insurance, shipping, and use of borrowed materials. In this latter group, those difficulties that are an innate part of the physical activity have tended to be standardized through custom and the use of common forms and special mailing supplies. These may not have provided completely satisfactory solutions, but they have reduced physical labor.

The trend of the solutions to the first category of problems is most encouraging for interlibrary loan. As the requests for interlibrary loan have increased, librarians have tended to relax the "research and general study" restriction, especially on the regional level. In the continuous compilation of regional union lists of serials and the movement toward increasing the effectiveness of union catalogs, one sees tangible evidence that there is an active interest in developing tools capable of providing effective access to the library resources of particular areas. In addition, much that has been unavailable for interlibrary lending, like serials and newspapers, is now obtainable by copying.

However, the pattern of interlibrary loan requests has produced some reactions. Librarians tend to borrow upward, sometimes horizontally, but rarely downward. Regional union catalogs and union lists of serials may act to reduce the flow of requests to libraries outside a region, but even here the main flow is upward. Within the structured system of a main library with suburban branches, all having essentially the same books, requests for the uncommon title flow naturally to the main library. It is expected to act as a supporting

collection. In much the same way, libraries operating outside a formal system find it to their advantage to request material from a major library, where the item would most likely be located. The larger the research library, the better the incidence of success. This pattern is dramatically illustrated in Kurth's *Survey of the Interlibrary Loan Operation of the National Library of Medicine,* by glancing at the serial titles most demanded. The title most frequently requested is *Lancet* and among the first thirteen are the American Medical Association *Journal,* American Dental Association *Journal, Science, Nature,* and several others which in many instances certainly could have been obtained as easily from a library smaller and closer.[14] Since the large libraries, in turn, borrow from their peers the lack of equity between the large and small libraries, while understandable, has had some negative results for interlibrary loan. More and more libraries are refusing to service requests for undergraduates and even graduate students, to verify inadequate citations, or to lend serials on interlibrary loan. In the last instance they are instead substituting copies, sometimes at prices beyond the ability of the researcher to pay.

If we accept the idea that the work of a library is a reflection of the immediate and total environment in which it operates, it would be well to examine the library's reference function as expressed in interlibrary loan to determine how consistent it is with its current environment—and to what degree it may be anticipating change. The following statements are generally accepted as true:

1. Access to library materials is essential to study (whether professional or lay), research, and teaching.

2. A library can hope to be better able to serve, but it cannot hope to attain self-sufficiency.

3. Larger libraries cannot hope for reciprocity in inter-library lending from smaller libraries.

4. Academic institutions are faced with rising enrollments, a move away from the textbook to individual study and research, and incursions into new degrees and areas of concentration. For the smaller institution, the situation is very acute. In 1897, slightly over 70 per cent of the approximately 4,500 graduate students enrolled in fields which led to the doctoral degree were working in the humanities and social sciences. More than 100,000 graduate students were enrolled during 1956-57 in programs which led to the Ph.D. de-

gree, and they were almost equally divided between the humanities and social sciences and the biological and physical sciences.[15] With the smaller academic libraries historically oriented to the social sciences and the humanities, they can never expect to support the students and faculty in the areas of the biological and physical sciences without outside help.

5. New generations of users, many of whom enjoy a mixed blessing of leisure, are calling on the public library to supply individual books and materials which are outside the mainstream of the collection. The public library is also faced with requests from highly motivated individuals in businesses, local industries, and the professions, many of whom have been directly exposed to the interlibrary loan services offered by academic libraries.

6. In a society in which technology produces new industries overnight, the library has become an integral part of the research and development team. No matter how well provided those libraries are to meet explicit research needs, they cannot anticipate the need for the non-current but still important article or for library resources in exploratory investigation.

Some of the responses of libraries to the above facts and the many others which clearly point to a need for freer access to books and information are stop-gap measures; some, which do not interpret interlibrary loan too narrowly, are attempting to permit it to approximate its contemporary purposes.

In many libraries nothing is being done or can be done. With inadequate staff, harassed by crowded quarters, and faced with the need for constant attention to bread and butter obligations, the potential borrowing librarian is very reluctant to further the patron's desire to continue a search beyond the immediate collection. To request an interlibrary loan takes time and energy away from other things; and besides, the book might not be sent or, if it is sent, the whole procedure takes too long. In all too many cases, the small library is not aware of the potentialities of interlibrary loan, it hasn't the bibliographic tools to verify the citation, or it doesn't know where to ask. Others view any attempt at interlibrary loan as a criticism of the collection and a violation by the library user of a contract according to which he is to have no interest or desire beyond "this" library.

While for the small library the problem lies in an inability or lack or desire to borrow, many lender libraries view any further commit-

ments to interlibrary loan as extending a service which is already beyond their interest or their ability to support. Notwithstanding their allegiance to the ideals of study and research, they nevertheless take easy recourse to at-home obligations.

More than any other group, librarians of colleges and smaller libraries have been disturbed by the continuation of previous interlibrary loan practices.[16] For them the dynamics of social and educational change are not theoretical. They are now faced with more of a different kind of student who requires more material and much of this material is impossibly expensive. Many have never been satisfied with the limitations on borrowing that have been implied in the interlibrary loan code. Their goal can be described as cooperative interlibrary loan in which location is not an end in itself, but only one part of a process entailing need, source, and delivery.

In most instances the hopes of those seeking solutions on a broad front lie within a regional arrangement. Although this makes for a variety of approaches, it does permit the flexibility to build on the customs and strengths of each distinct area. The recommendations in Wyman W. Parker's survey of academic libraries in Ohio [17] represent a continuation of the pattern of cooperation of the Joint University Libraries and the academic libraries in North Carolina. As the libraries concerned have good to excellent college collections, he feels the need is for an equitable sharing of research materials, as the usual "interlibrary loan is not the answer to this need of large resources by students who are now required to do individual work on the college campus." [18] The research materials would be housed in a jointly supported bibliographic center which would also be responsible for locating and borrowing books and for compiling lists of the serials of the cooperating libraries.

Far more comprehensive is the *Report of the Commissioner's Committee on Reference and Research Library Resources* [19] for New York State. This might act as a handbook for studies aimed at serving the library needs of all the citizens of a state. Built on existing resources whenever possible, the program calls for a mutually supporting chain of regional libraries. Each request would filter upward through progressively larger resources to where it could be serviced. Recognizing the need for speed, the system would be provided with electronic hardware and rapid communication and delivery.

While only two studies have been discussed, others are available, including those on Maine,[20] New Hampshire,[21] and Colorado.[22] In

each, one finds uniformities in purposes and techniques which together may present an insight into current and future directions.

One finds in these studies:

1. There is a growing concern with providing all library users with equal access to materials. This is especially true where the system is organized within a political unit and the larger library is publicly supported.

2. Interlibrary loan is no longer concerned merely with the unusual title.

3. While in theory all libraries participate equally, one or more larger libraries is expected to act as lender library. Where the backstop library is tax supported, this may be considered as an extension of public service. If the library is associated with a state university, the university is aware that benefits will accrue to it in raising educational levels, in training students who are often its future graduate students, and in projecting an image of service to the state. In many cases the larger library may already be supplying the books. Now through the use of quick copying machines, serials can also be made available without inconveniencing its own in-house users.

4. Speed of communication and delivery are vital to making the network workable. There is a correlation between quick access and the willingness of the library user to have the material he needs located elsewhere.

5. The borrowing academic libraries need to buy more bibliographies, arrange for faculty and students to visit other libraries in order to avail themselves of their resources directly, and provide copies of articles supplied by other libraries. Generally, they are encouraging and not penalizing those who want to extend their range beyond the immediately available.

6. The need continues to exist for tools to control serials on the local level.

7. The library of libraries in each system has to provide more than materials. Consideration is being given to complementing the reference-research functions of the smaller libraries.

8. Each regional system has to have outlets to other resources, whether this is within the chain organization of the New York scheme

or directly into the great national libraries in Washington. No system can hope for self-sufficiency.

Without suggesting that the answer to accessibility lies inexorably in the direction of a central library or that this is in itself good or bad, this appears to be the general direction of future interlibrary loan. This does not, however, reduce the responsibility of each library to develop and maintain a collection fully adequate to meet its basic program. But when the human and material resources of any one library cannot meet the needs of a user, a mental and physical environment must exist in which they can be met. The key to this is interlibrary loan.

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The Publishing and Reviewing of Reference Books

MARGARET KNOX GOGGIN AND
LILLIAN M. SEABERG

J. D. COWLEY, in his book *The Use of Reference Materials,* describes reference work as a ". . . series of crises which arise whenever anyone wants to know anything. . . ." [1] To meet each such "crisis" the reference librarian must be prepared with full knowledge of available library resources in order to provide the inquirer with the materials best suited to his particular need. This is not the time to discover the reference title which should have been ordered last year; nor is it the proper moment to make a first acquaintance with a book. Indeed, as Mr. Cowley so graphically points out, "The enquirer has not time to wait while we discover whether a book is indexed, whether it has bibliographies, or how it is arranged. He expects the librarian to know these things beforehand, just as we expect a doctor to know, generally speaking, what the insides of our bodies look like without opening them to see." [2]

Reference service depends first, then, upon a knowledge of what reference books have been and are being published, secondly, upon an evaluation of each of these reference sources, and thirdly, upon a thorough knowledge of the use of each reference book available.

Since a definition of terms is preliminary to any discussion, this paper should properly start with a terse but conclusive definition of the "reference book." *The ALA Glossary* regards a reference book as "a book designed by its arrangement and treatment to be consulted for definite items of information rather than to be read consecutively." [3] This is concurred in by most authorities,[4-6] although from time to time the idea is espoused that any book which supplies a fact wanted by a person could be called a reference book. For the purposes

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of this paper, the narrower definition will be employed. However, whenever selected lists of reference works are used, the validity of the selection of titles as being "reference" books will not be questioned.

There is no need to sketch herein a history of the publishing of reference books since this has been concisely, but adequately, treated by Raymond L. Kilgour.[7] His discussion of some of the major reference sets and reference publishers, particularly during the period from 1946 to 1957, specifies outstanding new titles and revisions of older and established reference sets. Yearly reference lists from 1958 to the present time can bring the reader up-to-date on specific titles. There remains for us, therefore, a brief analysis of who is publishing what type of reference tool and in what subject areas publishing seems most active.

Preliminary to any such analysis there must be an overview of the realm of reference book publishing, an understanding of the total from which certain traits or characteristics are drawn. The actual number of reference books published to date remains an unknown quantity. As Dr. Shores pointed out in 1952: "The world's reference books now comprise a literature so extensive that it is no longer possible to compile an inclusive bibliography." [8] The monumental listing of reference sources, Constance Winchell's *Guide to Reference Books,* lists 5,500 titles in the seventh edition published in 1951.[9] The four supplements, covering the period from 1950 through 1962, add 4,730 titles.[10] But even with this seemingly vast number, Winchell does not pretend to have a complete listing of *all* reference books published.

As we cannot count the number of reference books published in the world from the earliest date to the present time, so we cannot give the actual number of reference books published in any one given year. Lists of reference works are made, but each list maker qualifies his choices in some way and then admits the probability of his missing many titles which should have earned a place. It is safe to answer as did the mythical scholar who, when asked how many books were published in his field that year, ". . . consulted his records, studied a minute crack in the wall, and stated 'In 1953 there were exactly 2,569 science titles published in the United States. And nobody can prove otherwise.' " [11]

No person would deny, however, that the number of reference books published each year is increasing. Dr. Shores, in his "Patterns of American Reference Books," cites the one hundred fifty titles in the

Saturday Review's Annual Reference Roundup in 1952 and the annual reference list in *Publishers' Weekly* to confirm his conviction of the growing rate of new reference titles.[12] Corroboration is found in the increase in the number of books listed in the supplements to the *Guide to Reference Books,* from 1,000 titles for 1950-52, to 1,200 (1953-55), to 1,230 (1956-59), to 1,300 for the 1960-62 years.

It might be safe to assume that the number of new reference books published yearly will increase in proportion to the increase in the total book production. Robert W. Fraze, presenting statistics of actual book production in the United States for 1951 and 1960, with a projection for 1980, has predicted an increase of between 66 per cent and 100 per cent by 1980 if the present publishing trend continues. Foreign book production, based on the activity in 31 countries, might show an increase of about 75 per cent in 1980 over the figures for 1959.[13] Assuredly the number of reference books published will increase within this framework.

The announcement of these new reference titles will be made by publishers' advertisements; by a listing in the "Weekly Record" of *Publishers' Weekly* and in the *Cumulative Book Index;* by a review in the general reviewing sources such as the *New York Times Book Review, New York Herald Tribune Book Week,* and *Saturday Review;* or by mention in such library periodicals as *Booklist, Wilson Library Bulletin, Library Journal, College and Research Libraries, Special Libraries, Horn Book, Top of the News,* etc. Subscription books may be presented with a full review in *Booklist* and *Subscription Books Bulletin.*

Annually many lists of reference books are published, to furnish a checklist against which reference librarians can measure their knowledge of the current output of possible reference acquisitions. There is the list of the "outstanding reference books," published yearly since 1953 in the *Library Journal.* Winchell and her colleagues at Columbia University Libraries have prepared semi-annual lists of reference works which have been published each January and July since January 1952, in *College and Research Libraries.* The *Saturday Review* has presented a yearly reference book round-up from 1950 to 1955 and a review of selected reference titles since then, while *Publishers' Weekly* devotes an annual issue to this type of publication. The *Wilson Library Bulletin* has a monthly listing of reference titles, "Current Reference Books," started in 1938 by Louis Shores and continued by Frances Neel Cheney since November 1942.

Realizing the futility of attempting to compile a comprehensive list of all reference works as a basis for an analysis of the trends of reference book publishing, Seaberg selected for her field of inquiry the reference books reviewed in the *Library Journal* for 1952, along with the lists of selected reference titles for 1957 and 1962 published in that journal; the semi-annual lists of reference books appearing in *College and Research Libraries* for 1952, 1957, and 1962; and the titles on the monthly lists of "Current Reference Books" in the *Wilson Library Bulletin* for those same three years. Although some uniqueness in titles might be expected, it is nevertheless surprising to find that there is little duplication among the reference books in the three sources. In 1952, 92.5 per cent of the titles were on only one of the lists; by 1957, this had decreased to 83 per cent, which figure dropped to 80 per cent in 1962. While by 1962, 4.7 per cent of the titles appeared on all three lists as opposed to a 1.1 percentage in 1952, it is quite obvious that librarians need to use all three sources to keep abreast of new reference titles, even "selected" reference books.

This divergence in selection is due, in major part, to the difference in purpose of the three listings. The aim of "Reference Books of 1962" in *Library Journal* is ". . . to select publications suitable for small and medium-sized libraries, with emphasis on the public library but with possibilities of usefulness for smaller college libraries. . . ." [14] *College and Research Libraries*' lists are ". . . to present a selection of recent scholarly and foreign works of interest to reference workers in university libraries . . ." and ". . . does not pretend to be either well-balanced or comprehensive." [15] Much more general in nature is "Current Reference Books" which started with the avowed intention of reviewing, noting, and listing ". . . reference books of interest to general libraries that are not sold thru subscription." [16]

That reference books are published predominately by the trade publisher comes as no surprise, as indicated in Table I. Of the titles appearing in the three lists cited above, 71 per cent were trade publications in 1952 and 1957, the percentage dropping to 64 per cent in 1962. The university presses, gaining in importance since World War II, have provided libraries with from 16.5 per cent to 18.5 per cent of the reference titles on these three lists each year. Stimulated by grants from the Ford Foundation and provided with a growing number of manuscripts due, perhaps, to the rising "break-even" point of the trade publisher, the university press continues to develop as a publisher of serious nonfiction and reference and research materials.[17]

TABLE I

Reference Books from Three Selected Sources by Publisher

Type of Publisher	Percentage of Total		
	1952	1957	1962
Trade Publishers	71.2	71.4	64.8
University Presses	16.5	18.5	17.6
Professional Organizations and Learned Societies	7.4	7.2	11.4
Governmental Bodies	4.5	2.6	5.8
Individual	.4	.3	.4

Learned societies and professional associations have increased their publishing activity during these ten years by over one-third while governmental bodies accounted for almost 6 per cent of the titles on the selected lists. The growing contribution of these two types of publishers to the store of reference works will require of librarians an alertness to find announcements of the appearance of new titles not as well advertised as those of trade or university presses.

An analysis of the type of reference books published is presented in Table II and indicates the steady popularity of dictionaries, encyclopedias, and handbooks. Bibliographies, union catalogs, and catalogs of special collections show the most increase, an indication of the pressing need felt by librarians and scholars alike for knowledge of what has been published and where copies of publications are located. New methods of publishing catalogs of great collections have opened the door to such publishers as G. K. Hall who has reproduced some sixty-seven catalogs of varying size and subject matter, offering them to libraries at costs ranging from $12 to $9,170. The steady rise in the number of indexes also reflects this expanding need for bibliographical control of information, and the necessity for cooperation in identifying and sharing research resources.

Concerning the subject matter of these reference titles, Table III shows a continuation of publishing patterns of the past, with the humanities the most prolific, followed by the social sciences and then the sciences. While reference works in science and technology comprise

TABLE II

Reference Books from Three Selected Sources by Type

Type of Reference Book	Percentage of Total		
	1952	1957	1962
Dictionaries and Encyclopedias	20.7	17.1	27.3
Handbooks, Manuals, etc.	33.2	41.7	22.9
Bibliographies, Catalogs, Union Lists	10.4	11.5	25.7
Historical or Expository	24.4	11.3	6.6
Indexes and Directories	7.1	10.7	11.0
Atlases	2.1	3.2	4.6
Anthologies	1.7	4.6	1.1
Tables	0.4	0.0	0.7

only 14 per cent to 20 per cent of the titles on the three selected lists, it must be pointed out that this is somewhat less than a fair estimate of the number of titles published. In the introduction to "Reference Books of 1951-52," Winchell states ". . . with the exception of two titles, the sciences and technologies have again been omitted." [18] Although this statement is not repeated in 1957 and 1962, the sciences continue to be comparatively neglected areas.

TABLE III

Reference Books from Three Selected Sources by Subject

Subject of the Reference Book	Percentage of Total		
	1952	1957	1962
General	9.9	10.4	17.8
Humanities	47.0	40.3	41.1
Social Science	29.0	27.5	24.0
Sciences	14.1	21.8	17.1

Of considerable interest is the increased production of reference titles with a national or regional emphasis. Over 32 per cent of the titles listed in 1962 were regional in nature, almost double what it was in 1952. In a year when activity in Saigon, Indo-China, Vietnam, and the rising countries of Africa was uppermost in the news, the publications reflect a continued predominant interest in North America and Europe, with only a slight increase in works on Africa and a decrease from previous years for reference books on Asian countries. The increase in titles on South and Central America may well reflect this country's growing awareness of our southern neighbors.

A final observation drawn from the Seaberg analysis of reference titles from three library periodicals, is the fact that about 25 per cent of the 1962 citations are revisions of earlier works, added volumes to standard sets, or an annual volume continuing a series. This attention to the matter of up-to-dateness is also noted by Shaw, in his introduction to "Reference Books of 1962," in which he commends editors and publishers for their awareness of the need for currency in reference information.[14]

Two additional trends in the publishing of reference books should be noted, both the results of publishing innovations. The first is the appearance of numerous reference books in paperback. "Thanks to paperbacks," writes J. Sherwood Weber, "a private citizen with a modest income can for the first time in history possess a serviceable reference library without taking a personal loan or mortgaging the house."[19] The number of titles available is impressive—377 paperbound books are classified as "reference" in *Paperbound Books in Print* for October 1963.[20] Of this number, 107 are dictionaries while 196 are "personal and practical guides."

Along with the attention given to making reference books easily available to the general public through an inexpensive form of publication, there appears to be a concern on the part of publishers to provide libraries with titles or volumes of reference works which have long been out-of-print. The Wilson Company's reprinting schedule for early volumes of the *Book Review Digest* is only one example of this welcome activity. In addition there are increasing instances where some form of photo-reproduction such as xerography has been used to bring us such out-of-print works as the early volumes of the *Accountants' Index*, the *Art Index, Doctoral Dissertations Accepted by American Universities, Bibliography and Index of Geology Exclusive of*

North America, Bibliography of Indonesian Peoples and Cultures, to name just a few.

What is the "state of the art" of reference publishing? In one word: flourishing. The number of new titles is ever increasing while at the same time publishers are giving increased attention to bringing standard works up-to-date. Dictionaries, encyclopedias and handbooks are still popular, and the printed catalog, the union list and the bibliography have more than doubled in number within the past five years. Xerography has made possible the reproduction of a great many of the catalogs of unique library collections; its use in reproducing formerly out-of-print titles is expanding. And, finally, reference titles are now available for the average person to own and use in his home.

Reviewing of Reference Books

Faced with the multiplicity of titles which might conceivably produce the necessary fact, figure, idea, or citation needed by an inquirer, the librarian searches for some description and evaluation of new reference titles. The *Book Review Digest, Technical Book Review Index, Index to Book Reviews in the Humanities,* and *Bibliographie der Rezensionen* are known sources for starting a search for book reviews. However, each of these has its limitations for locating reviews of reference books.

The *Book Review Digest,* started in 1905 by the H. W. Wilson Co., has performed an admirable job through the years of guiding people to book reviews appearing in some eighty-one journals. Not until Ditzion reported on a brief study of book reviewing media, in 1934, was there any published criticism of the *Book Review Digest,* and in this article he bemoaned the fact that many late reviews in professional journals were not being indexed.[21] In a letter to the *Library Journal* in response to this criticism,[22] the editor of the *Book Review Digest,* Marion Knight, pointed out that the policy governing the publication was to index reviews of a title only if two reviews had appeared during the indexing period, or three reviews if the book were fiction. To support the omission of reviews from many professional journals, Knight cited examples of the time lag between publication of a book and the appearance of the review in the more scholarly journal, a lag of from two to four years in some instances.

Merritt's study of the *Book Review Digest* for 1948, fourteen years later, revealed the continuation of this situation, showing that the *Book Review Digest* indexed 21,068 reviews of 3,836 books appearing

in eighty-one journals but did not index single reviews of 12,758 books published in those same journals.[23] A check of three journals indexed in the 1961 *Book Review Digest* revealed a similar pattern, the *Book Review Digest* indexing only nine of 74 reviews in *Library Quarterly,* twenty-three of 93 reviews in *Journal of Religion* and forty-one of 118 reviews in *Journal of Political Economy.* Thus one must conclude that the *Book Review Digest* is only a partial index to reviews, even in the journals listed.

The *Technical Book Review Index* is, as its name implies, limited to books in the fields of science and technology. Started as a quarterly by the Technology Department of the Carnegie Library of Pittsburgh and expanded in 1935 to a monthly (except for July and August), this index cites single reviews, generally from technical or scientific journals. The problem in locating reviews of science reference works is not one of using the *Technical Book Review Index,* but rather is inherent in the practices of reviewing science books in the science journals. Culver and Long found, in their study in 1949, the same situation that Schutze recorded two years earlier,[24] that only 18 per cent of the reviews of technical books appeared within four months of publication, while 60 per cent of the reviews located in scientific journals were for titles published within a seven-month period.[25] In an attempt to find ways to reduce the amount of time between the publication date of the book and the appearance of its review, Culver and Long interviewed publishers, periodical editors, booksellers, and abstractors, learning from them some of the reasons for this time lag: delays in the printing process, the practice of gathering reviews and holding them for one big book issue, and the lack of prepublication copies which could be made available to the reviewers. The problem of 1949 appears to be a continuing problem today; for, in the September 1962, issue of the *Technical Book Review Index,* 18 per cent of the titles listed were 1961 publications, reviews of which appeared between June and August of 1962 in science journals.

A third book review index, *Index to Book Reviews in the Humanities,* is still too new to be assessed, bothered, as it seems to be, by problems of finding a feasible publication schedule. The unfortunate demise of the fourth title, *Bibliographie der Rezensionen,* in 1943, was a blow to research libraries whose librarians and clientele had located English and non-English language reviews through this magnificent indexing tool.

All of these titles along with the various periodical indexes are

valuable sources for finding book reviews within their limitations. However, most librarians will use them for retrospective rather than current needs; for evaluation of new titles, they will go to the current journals which publish reviews.

One problem of reference book reviewing, then, is expressed in the two questions: Are there reviews of reference books? Are the reviews being published rapidly enough after publication date to be useful to the librarian?

Shores, in discussing the evaluation of reference books in 1952, says that ". . . we have more means than ever through which the alert reference librarian can detect inferiorities."[26] To substantiate this statement he cites the *Guide to Reference Books* as the first and foremost source for evaluative data, with additional aid from the *Subscription Books Bulletin, Saturday Review, Wilson Library Bulletin* and the *Library Journal.* No one would question the importance of the *Guide to Reference Books* and its supplements as the ". . . reference librarian's mainstay for the selection of materials for purchase";[27] but all would agree that it is not kept right up-to-date for new books, necessitating other reviewing sources more current in nature.

An approach to the problem of assessing the quantitative adequacy of reviews of reference books is the study made by Catherine Glennan as a master's project for Western Reserve's School of Library Science.[28] Taking a random sample of one in every four books listed in each of the annual "Reference Checklists" published in *Library Journal* for the years 1953 through 1957, Glennan searched for reviews of these titles in five sources: *Library Journal, Wilson Library Bulletin, Booklist* and *Subscription Books Bulletin, Book Review Digest,* and *Technical Book Review Index.* When one remembers that the reference titles included on the annual lists are judged the best or at least the superior books of each year, it is surprising to note that only 63 per cent of these were reviewed at all. In addition to the 37 per cent not reviewed, another 22 per cent were reviewed only once, and thus Glennan concludes that 59 per cent were either not covered or inadequately covered. An additional fact to add to this bleak picture is that 20 per cent of the reviews which *were* written appeared in the year after the date of publication.

An earlier survey was conducted by F. R. Pryce in England and reported to the Group Meeting of the Research and Special Libraries Section of the Library Association in 1954.[29] Analyzing the reviewing of reference titles, he reports that from the evidence obtained ". . . it

is apparent that the greater number of reference books are either inadequately reviewed or entirely overlooked."[30] Two of the four titles cited in the brief table accompanying the report show serious time lags from publication date to review appearance, a year in one case and five years in another.

As an additional check on the availability of reviews of reference works, thirty titles were selected from the *Ready Reference Collection,* the list of basic reference books recommended for the Ready Reference Center of Library 21 at the Seattle World Fair 1962. Ten titles published within a 1950-1955 date and ten titles appearing between 1960 and 1962 were chosen arbitrarily, with another ten titles selected from pages 5 and 6 of the list. In the selection process, all continuations were omitted as well as all revised editions of earlier works, since few reviews would be expected to be written for these types of publications. Reviews of the thirty selected titles were sought in *Book Review Digest, College and Research Libraries, Library Journal, Wilson Library Bulletin,* and *Subscription Books Bulletin.* The results from this brief study revealed sixteen of the thirty titles were listed in the *Book Review Digest;* eighteen out of thirty in *Library Journal;* six in *College and Research Libraries;* twelve in *Wilson Library Bulletin,* and six in the *Subscription Books Bulletin;* six titles were ignored by all these reviewing media. This inadequate sample indicated no improvement in reviewing in the 1960's over the early 1950's; for while the *Library Journal* reviewed more of the 1960-62 titles than the earlier sample, the *Wilson Library Bulletin* reviewed less, and *College and Research Libraries* had the same number.

It would appear in the light of the evidence and pending further studies of a more extensive nature that the reviewing of reference books is highly inadequate as far as their existence and the rapidity of their appearance are concerned. However, this conclusion is based on studies of single reference titles and has ignored generally the subscription book. What about these expensive sets of reference works?

The subscription book, sold directly by the publisher to the consumer,[31] is much more in need of reviews than the reference books included on the list just discussed. This need was recognized by librarians early in the 1900's as evidenced by the appearance of numerous articles in the periodical press discussing the problems of the subscription book and decrying some of the practices of some agents and publishers. Out of a need for reliable information about subscription books came the reviewing bulletin of the state library as-

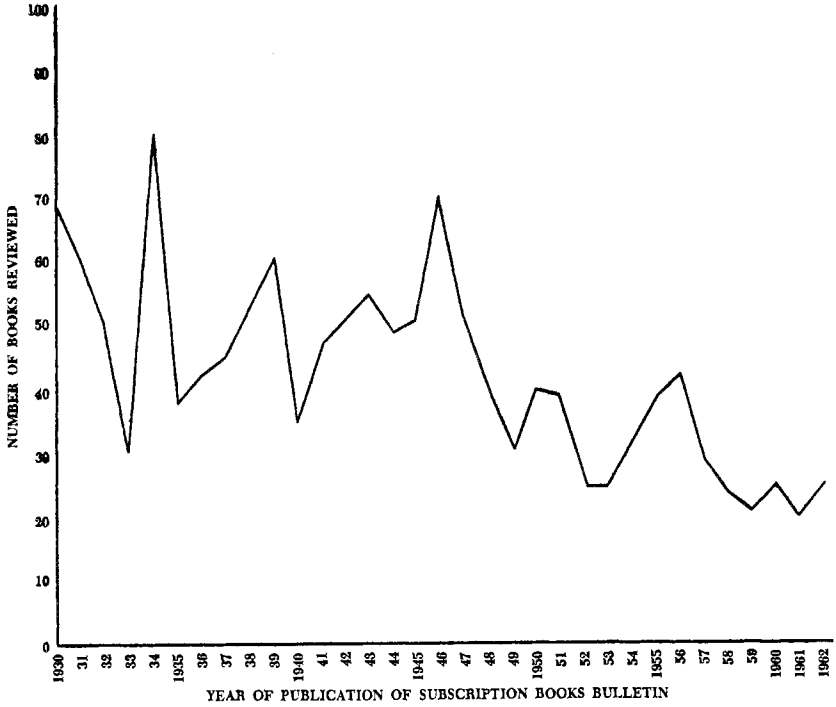
sociation of Massachusetts and the *Subscription Books Bulletin* of the Pacific Northwest Library Association. By 1926, sentiment on the part of librarians caused the American Library Association to establish a committee headed by Julia Ideson to study this type of reference book and their publishers. It was the work of this committee which led to the establishment of the first Subscription Books Committee of the American Library Association in 1929, and a new reviewing medium, *Subscription Books Bulletin*, in January 1930.

From January 1930, reference librarians appointed by the American Library Association to be members of the Subscription Books Committee have worked diligently to fulfill the aim expressed by the first Committee: ". . . to examine every set sold by subscription or otherwise qualifying and to furnish pertinent buying information and appraisal of value or special usefulness." [32] A description of the methods used by the Committee in its reviewing procedures will be found in Dorothy Black's article in *Illinois Libraries*,[33] while articles by Kerr [34] and Conat [35] furnish valuable historical information.

Librarians would all agree with Shores when he wrote in 1948, "In the 18 years that have elapsed between Miss Wigginton's first year as chairman and Joseph W. Rogers' current chairmanship, the Subscription Books Committee has built an enviable reputation for fairness. . . . Today the SBB has become a potent influence for good." [36]

Although subscription books suffer the uncounted state of all reference books, the U.S. Government does record the number of copies sold, publishing these figures every four years in the *Census of Manufactures*. Thus when we are searching for an overview of the comprehensiveness of subscription book reviewing, we can compare the rate of increase or decrease in sales of subscription books to the number of books reviewed.

In 1947, there were sold 14,626,000 copies of subscription books. This increased to 25,860,000 in 1954 and jumped to 30,650,000 by 1958.[37] While this activity was steadily rising, the number of reviews of subscription books appearing in *Subscription Books Bulletin* was declining as the accompanying graph clearly shows. The merger in September 1956, of *Subscription Books Bulletin* with *Booklist*, protested by many reference librarians out of fear of losing a potent evaluating force, appears to have had a deleterious effect on the output of the Subscription Book Committee. Never have so few reviews of subscription books been published in *Subscription Books Bulletin* since the very beginning of this periodical.



NUMBER OF REVIEWS APPEARING IN SUBSCRIPTION BOOKS BULLETIN
1930-1962

One argument for a merger of the two periodicals was the possibility of more up-to-date reviews, since *Booklist* was published twice a month as opposed to the quarterly schedule of *Subscription Books Bulletin*. However, an analysis of those reviews appearing in the *Booklist and Subscription Books Bulletin* from September 1960 to July 1962, reveals an average time lag of eight months from the appearance of the title on the market (generally counted from its listing in *Publisher's Weekly*) to the time the review appeared in the *Booklist and Subscription Books Bulletin*. Taking a random sample of three reviews per issue over the years of *Subscription Books Bulletin*, one finds that the average lag runs six months in 1934-37, seven months for 1938-41, seven and one half months for 1942-45, seven months for 1946-49, and eight months for the next two periods. In other words, there appears to be no shortening of the time-lag under the bi-monthly schedule of the reviewing medium.

While we might wish for more reviews appearing more rapidly, the quality of the reviews in *Subscription Books Bulletin* leave nothing to be desired. Through the years, the standards of unbiased analytical consideration of each reference book have earned the highest accolades from librarians and publishers. Following the criteria set forth in Isadore Mudge's "Introduction" to her sixth edition of *Guide to Reference Books,* the introduction so wisely reprinted in the seventh edition compiled by Winchell,[38] the *Subscription Books Bulletin* has set models of good reviewing practices for others to follow.

Have the reviewers of non-subscription books followed these principles and given to librarians the same high quality of reviewing? This question is not new. In 1891, the *Library Journal* carried a plea by Iles to remedy the ". . . haphazard and inadequate way in which reviewing is now conducted." [39] Among his recommendations were the following: the most competent authorities and critics should write reviews of books in special fields, the work reviewed should be compared with others in the field, and reviews should be signed.

Andrew Keogh, reference librarian at Yale University, criticized the reviews of the early 1900's as being written often by the author or a non-expert and influenced unduly by advertisements appearing in the reviewing media. Burpee's article is an attempt to refute these criticisms.[40]

However, criticisms of book reviewing, some warranted and others unwarranted, have continued through the years, becoming stronger in the later 1950's and the turn of the decade. Such articles as "The Decline of Book Reviewing" by Elizabeth Hardwick appearing in *Harper's Magazine,*[41] LeRoy Merritt's "Patterns of Book Reviewing" published by Wayne State University Press,[42] and Wagner's "The Decline of Book Reviewing" in *Cross Currents* [43] are merely examples of the attack now rampant against the lacklustre review, the favorable, or at worst noncommittal, review which appears to be the pattern today. Some of our basic sources for book reviews, such as the *New York Times Book Review,* are being criticized in articles appearing in the periodical literature.[44-45]

These criticisms are launched at reviewing in general. A search of the literature will find many articles as well as theses and dissertations analyzing the book reviewing in specific subject fields and by specific journals. Unfortunately, only the studies by Pryce and Glennan have been concerned with reference books *per se.* Pryce judged the quality of reference reviewing by analyzing reviews of reference works

published after 1947 according to five criteria: purpose and scope, collation, availability, date and period, and authority. One observation made in the study was that the more specialized the reference tool, the better the review; but the total pattern led him to the conclusion that there is an urgent need of more critical judgment.[29]

Glennan, in the study previously cited, categorized each review as being "informative" ("one which describes the volume with no more critical opinion than 'recommended'"), "evaluative," ("a review which gives an opinion or other critical material"), and borderline cases of either "informative-evaluative" or "evaluative-informative," depending on which factor was predominant.[46] An analysis of the reviews for titles on the selected reference lists from 1953 through 1957 in *Library Journal, Wilson Library Bulletin* and *Booklist and Subscription Books Bulletin* revealed that 31 per cent were evaluative, 35 per cent informative, 3 per cent were evaluative-informative, and 7 per cent were informative-evaluative. The remaining 24 per cent were merely listings of the titles. Glennan concludes from this study that "the lack of annotation and the many merely informative reviews are of little help" [47] to the librarian with the small budget.

In a paper on the reviews of best sellers, Boaz summarized her findings of reviews of some reference books on the best seller lists, these titles being *Betty Crocker's Picture Cook Book, Information Please Almanac,* and the *Thorndike-Barnhart Comprehensive Desk Dictionary.*[48] She concludes: "The reviews of this group of books were good in that they noted the authority of the authors or the compilers; they pointed out the particular purposes of each title, and told how well those purposes had been achieved." [49]

The desire on the part of librarians for more critical reviewing continued to appear even as late as June 1963, when our Canadian cohorts expressed this wish for *Library Journal* reviews through A. W. Bowron [50] and when Helen Silverman in the same issue urged better general reviewing while praising the *Library Journal* annotations.[51] Speaking for many of the *Library Journal* reviewers, Harold Lancour specifies the salient points in the brief reviews: ". . . what the book is about, its reading level and quality, its dimensions and limitations, and where it fits into the other material currently appearing in the same field, . . . (and) . . . something about the author especially as it has bearing on his competence to write that book." [52] Excellent criteria for all reviewers of reference works!

On the horizon are recent developments which portend a brighter

future. The *New York Review of Books,* first appearing during the newspaper-less days of 1963, is now into its first volume. "It is the first—and a welcome first—attempt to raise reviewing in America to an intelligent level," [53] wrote Louis Untermeyer. Whether the *New York Herald Tribune Book Week* will be simply an extension of its former *Books* or a fresh approach to books and their reviewing remains to be seen. A third newcomer has yet to appear on the scene, but the announcements have come from the American Library Association and the Council on Library Resources.[54] This will be a monthly journal to be published by the Association of College and Research Libraries under the editorship of Richard K. Gardner, and to consist of reviews of between 10,000 and 15,000 books a year, aimed at the interests of the college library. All of these new media may review reference titles.

J. D. Scott has said, "Of all books, it (the reference book) is the least easy to review, since its true quality emerges only in a long series of minor crises." [55] As we have viewed the trends in reference book reviewing, we find that the reviewing media have not been able to keep abreast of the publishing activity. Even in the field of subscription books, the facts show a decided decline in the number of books reviewed. Furthermore, the time lag between publication date and review continues to be a serious problem for the librarian who must have guidance in her selection process.

On the other hand, quality of reviewing in *Subscription Books Bulletin* remains the finest, setting standards for others to follow. The brief annotation in library periodicals is often descriptive rather than evaluative, but when found to be critical is a valuable aid to librarians. The reviewing found in *Library Journal, Wilson Library Bulletin* and *College and Research Libraries* deserves commendation for what has been done. Librarians look forward to more reviews, both more critical in nature and prompt in appearance.

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The Measurement and Evaluation of Reference Service

SAMUEL ROTHSTEIN

THE MEASUREMENT AND EVALUATION of reference service has been more often discussed than attempted. In fact, the literature of this subject has itself spawned a fair-sized literature of review,[1-9] of which the commentaries by Berelson, Rogers, Budington, Shores, and Wheeler and Goldhor are probably the most comprehensive and discriminating. The degree of attention is a little ironic, for the reviewers have reacted to their subject with more causticity than complaisance. Much of the literature they dismiss outright, and most of the rest they find repetitive, faltering, and inconclusive.[10-11]

This criticism seems largely justified, for the characteristic tone of the literature is one of querulous diffidence. Although Carnovsky,[12-13] Miles and Martin,[14] and McDiarmid [15] have pointed out the compelling need for quantitatively-based appraisals and offered sensible guidelines for their making, most reference librarians have remained unconvinced of the worth of such studies and uncertain in their methodology. The main incentive has seemingly come from outside the reference ranks in the form of administrators' pressure, and the mood of reluctance prevails. Certainly more time has been spent in hand-wringing over difficulties and in disparagement of results than in productive labor.

Admittedly, the task is formidable. As compared with other library activities such as circulation, acquisitions, and cataloging, reference service is ill-defined, with little agreement on its component parts. Is inter-library lending an integral part of reference work because many reference librarians are responsible for it? Formal instruction in the use of books and libraries? The supervision of reference reading rooms? The preparation of indexes? And having decided what the genus "reference librarian" does, how can one readily determine the

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effectiveness of his work or its impact? Reference librarians may have acted rather blindly in approaching their elephant of a problem, but it is undeniably a big one.[16]

In point of fact, the problem in all its dimensions has not really been attempted at all. The great majority of such quantitative studies as have been made has been limited to a consideration of reference work in public libraries, and more particularly to the work of answering reference questions and giving informal guidance to readers in the use of libraries and the choice of books. A smaller but substantial group of studies has examined reference collections, the organization of reference departments, and the composition of the "reference audience"—the people served. The reference service of college and university, school, and special libraries has been subjected to very little quantitative analysis in any of its aspects other than inter-library loans, which matter is reviewed elsewhere in this issue. The topic of formal instruction in the use of the library *has* received considerable attention, but Bonn's recent and thorough study of the trends and literature in this field obviates the need for further discussion here.[17] In all types of libraries and in all aspects of reference service, investigation has seldom gone beyond the first stage of "measurement" —description in quantitative terms—to the ultimate goal of full-fledged "evaluation"—rating or assessment of effectiveness and worth.

Against this background of general impressions, the trends in measurement and evaluation of reference service may now be considered in more detail. For convenience, they are grouped into the following categories:

1. Enumeration of reference questions answered is often attempted. The most common form of quantitative description is the simple tally of reference questions answered. This gross measure is concededly too crude to be meaningful and is almost certain to be incomplete, probably by a good 40 per cent.[18] However, the sheer number, running in the case of major public libraries perhaps into the millions, may in itself be impressive and revealing. Gross count can at least show that the library's informational service may be a sizeable business.

2. Reference questions classified by type, subject, purpose, or effect have been used in many studies. Simple enumeration gives equal weight to the service rendered by, say, a nod of the head showing the location of the card catalog and to the compilation of a lengthy bibli-

ography, to the assistance given a schoolboy and an august scholar. To discriminate between such levels of service, reference investigators have devised a number of classifications, none of which, it may be noted, has been considered wholly satisfactory. Since Guerrier's pioneering effort,[19] a number of investigators have used "time taken" as a basis of classification, tabulating the number of questions into anywhere from four to eight groups according to the number of minutes required by the reference staff to find the answer.[20] The method is admittedly deficient, since there is obviously no necessary relationship between effectiveness of performance and the time put into it. But the ease with which this form of analysis lends itself to accurate and consistent recording has attracted investigators anxious to find some way of eliminating guesswork.

A variant on this method, now more commonly employed than the original, is the grouping of questions by *type*. The favorite classification of this kind divides queries into: *directional* questions —calling merely for the location of a specific book or library facility; *ready reference* questions—calling for simple, factual answers readily ascertainable by the use of one or two standard reference books; *search* questions, sometimes more grandiosely called "research" questions—calling for more extended effort and the wider use of sources of information; and *readers' advisory* questions—assistance in the choice of books or the gathering of data. Many reference librarians, following the reasoning of Barton,[21] prefer to omit the "directional" group as not really calling for any professional skill.

A great number of other groupings have been tried: classification by *subject*[22]—inquiries arranged by the major D.C. classes; by *purpose served*—for business and industry, school assignments, personal use, etc.; by *source*—in person, by telephone, by mail; by *materials used*—reference books, the stack collection, pamphlets, government publications, the card catalog, etc.; by *effect*—the percentage of questions answered. None of these methods has been as yet sufficiently standardized to allow for reliable comparison of findings, but together they have yielded a body of useful data.[23]

3. The reference clientele has been subjected to analysis in a number of ways:[24] most commonly by occupational classification—students, businessmen, housewives, etc.; by sex; by educational attainment; by age; in the case of university libraries, by academic standing. The degree of public awareness of reference service has

been investigated,[25] as has the degree of satisfaction with the service received.[26]

4. The reference collection has been the subject of surprisingly little quantitative study considering the traditional emphasis within the profession on the importance of reference books. The principal method employed has been the checking of library holdings against standard bibliographies such as those of Mudge-Winchell and Shores and then almost always only in respect of a single library.[27] More recently, attempts have been made both in the United States [28] and, more satisfactorily, in England,[29] to ascertain the state of reference stocks in public libraries as a whole.

5. Reference personnel and the organization of reference departments have also been rather infrequently studied, although here too the professional associations have belatedly set about gathering some basic facts.[30] The number of libraries with reference departments, the number of full-time reference librarians, the duties for which reference departments are responsible, the apportionment of time within libraries for reference work as compared to other library activities, and the policies of reference departments with respect to types and levels of reference assistance have all received sporadic attention. Phelps has done a unique, although limited-scale, study of the effects of subject departmentation on the dimensions and character of reference work in public libraries.[31]

6. Cost analyses have perforce been few, for refined measures of units of work accomplished must be available before the costs of such units can be computed. Roth [32] and Budington [33] have offered useful suggestions on the methodology to be employed, and a number of surveys have indicated what it costs, in direct labor, to answer the "average reference question" in a given library.[34]

7. The evaluation of reference service, whether within a single library or in respect to groups of libraries, is a rarity indeed in the reference literature. Evaluation presupposes measurement against a specific standard or yardstick or goal, and no area of library service has been more deficient in such standards than reference service. A review of official statements of standards [35] reveals that they usually say no more about specifications for reference service than that there should be enough available! Much the same bleak situation obtains for textbooks, "Wheeler and Goldhor" apart, and for the various surveys that have been conducted for individual li-

braries: almost never is a quantitative prescription set forth, almost never is the given library's service rated against such a yardstick.

A handful of useful exceptions may be cited. The *A.L.A. Post-War Standards* specified a standard for public libraries of one-half to one reference question to be answered per capita of community served.[36] *Public Library Service* suggests that libraries serving populations of between 25,000 and 49,999 should have "at least 1 professional staff member for each of the following aspects of library service: information and advisory service for adults; information and advisory service for young adults; information and advisory service for children." Larger communities should have proportionately more reference librarians, including some specialists.[37] The Massachusetts state standards offer exactly the same prescription.[38] Hutchins, citing a study by Joseph Wheeler, thought that a ratio of one reference question answered to every ten volumes circulated would be "high."[39] Baldwin and Marcus, who found that the average time taken to answer a reference question in the twenty-eight medium-sized public libraries that they investigated was 5.4 minutes, thought that this norm might also be considered a valid standard.[40] In Great Britain, the Library Association, seeking to establish a specification for the amount of reference service which should be available in public libraries, recommended a sliding-scale ratio of reference personnel to size of population served.[41] Most recently, Wheeler and Goldhor, drawing on their extensive personal experience, have made a number of specific recommendations with respect to reference staffing:

> . . . a library with 12 employees should have an organized reference department and service with at least 1½ trained librarians devoted to the reference function . . . for small libraries with less than five on the staff, one-eighth of the total staff time should be devoted to adult reference service . . . for staffs of ten to eighty, one-eighth of the total staff time should be assigned to reference. For staffs of eighty or more, one-seventh of the staff should be assigned to adult reference duty . . . in the informational services . . . at least 70 to 75 per cent should be professionals.[42]

Thus far there appears to have been no attempt to apply the above yardsticks to the assessment of reference performance in actual libraries, at least in groups. Individual institutions may have attempted self-ratings along these lines, and a study of annual reports might reveal greater activity in assessment than is evident from the periodi-

cal literature. However, a safe guess would be that up to this point such assessment as has been made of reference service has been based on wholly impressionistic judgments, not backed by quantitative data. Even judgments of this type are scarce indeed. Reference service, like any other aspect of library work, may be good or poor, but try to find someone who flatly says so! All in all, the evaluation of reference service thus far can best be depicted as a closed circle of futility: not enough quantitative data to support an accurate rating, an unwillingness to venture a judgment without such support, *ergo* nothing said at all!

Just the same, there *is* a good deal to be said, if not with unassailable certainty, then at least with a modest degree of confidence; if not regarding the value and impact of reference service in all its aspects, then at least with respect to the dimensions and character of its chief element: the information service. Although Bundy's survey is the only one to encompass a sizeable group of American libraries, the findings reported in the small-scale studies are consistent enough to add together into a composite picture. Here then, in summary form, is what two generations of measurement can tell us about reference service in American public and university libraries:

1. Almost all American libraries do reference work, but from the purely quantitative point of view it is not a very important part of their operations. Only the larger public and academic libraries may be counted upon to have a full-time, trained, reference librarian; in the smaller libraries reference responsibilities are more likely to devolve upon the circulation staff as a subsidiary part of its duties.[43] Larger libraries also are apt to disperse reference responsibilities, notably among departmental libraries in universities and among subject departments in public libraries, but they will usually also have one division specifically designated as the reference department.

2. In either case, the proportion of total staff time given over to reference service is small: from 6 to 8 per cent in the three studies reporting such data.[44-46] Technical service and circulation staffs are almost certain to be several times as large as reference staffs, and, in comparing the volume of transactions, the number of reference questions handled is likely to be far smaller than the figure for books loaned.[47]

3. This relatively small work load probably stems from the fact that

the public library's public is by and large unaware of or uninterested in the availability of information service. Only a tiny minority of the people questioned in the Campbell and Metzner study apparently thought of turning to the public library for information,[48] and a Michigan library found that 50 per cent of the people using the library did not even know that they could get questions answered by telephoning the reference department.[49]

4. The clientele that does make use of the public library's reference service is by no means representative of the community at large or even of the library's public. The reference clientele is younger, better educated, and has a much higher proportion of men.[50] In the branch libraries, the great majority of reference users are high school students doing school-related assignments. In the central libraries, college students, business firms, and men seeking information for occupational use predominate, although the demands of women's organizations seeking help with program planning may be a significant factor in the smaller libraries' reference load. The percentage of individuals seeking advisory service for personal reading programs is always very small.

5. What does this specialized clientele want from reference librarians? Most frequently—indeed, by an overwhelming majority—just two things: directions and the answers to factual questions. Many reference librarians no longer count directional queries on the logical ground that they do not represent professional accomplishment, but in the libraries that do count them they seemingly constitute a good half of the total number received.[51] Which clear fact has led a number of librarians to recommend or actually institute the greater use of signs and clerks to economize the time of the professional staff.[52]

Of the reference questions proper, the great majority, perhaps 90 to 95 per cent, are of the "ready reference" type, answerable in ten minutes or less. Most of them come across the reference desk, but an increasing proportion now are being received by telephone, and some of the largest public libraries have set up special telephone inquiry collections and service arrangements.[53] Public library reference departments are, at least occasionally, willing to give much more time—up to an hour or more—for individual inquiries, but the proportion of staff time devoted to such "search" or "extensive" service is still very small. Academic libraries are generally prepared to give extensive assistance to faculty members, but seldom to students;

for the latter, "guidance" is considered more appropriate than direct information service.

6. The questions posed to reference librarians in public libraries are potentially of infinite variety, as any number of journal articles have reported. Nonetheless, in the various public libraries where they have been classified by subject, they are seen to concentrate heavily in the social sciences (D.C. 300's), history and biography (D.C. 900's) and the sciences, pure and applied (D.C. 500's and 600's), and for information relating to the present and near past at that. The traditional literary or liberal arts background of reference librarians may therefore be inappropriate to their tasks.

Similarly, the traditional emphasis on close knowledge of "reference books," as represented by the titles listed in Mudge-Winchell, is seen, from the data on sources consulted by reference librarians, to be questionable.[54] Reference librarians do answer a sizeable proportion—perhaps half—of the questions by means of reference books,[55] but most of these from a very small, inner group of "core" titles: the encyclopedias, dictionaries, and almanacs. For the other questions they range rather widely: periodicals, the "stack collection," government publications, vertical file materials, and special indexes compiled within the department.

Assuming, of course, that the libraries have such materials, which assumption is probably not justified except in the case of the larger libraries, Bundy has shown that in "over half of the [public] libraries, the library patron would have access to information in non-book form only through the *Reader's Guide*. . . . Only in the large public library can one expect to find ready access to publications of the United States government, to the extensive materials published in pamphlet form . . . to information in business and education journals or to periodicals issued abroad." [56] The college libraries, where reference collections were checked against Mudge-Winchell or Shores, generally made a better showing, but did not possess a majority of the titles checked. Even so large and esteemed an institution as the Los Angeles Public Library did not have strong holdings of foreign language reference books.[57]

A most interesting problem with respect to reference librarians' use of sources in reference work is still unanswerable from the quantitative findings available thus far. In view of the resistance offered by reference librarians to proposals to limit the information to be fur-

nished on catalog cards, definite data on reference librarians' use of the card catalog would be most welcome. We do have some hints that reference librarians actually "find the answer" in the card catalog in only a very small minority of cases,[58] and probably more often than not do not even have to consult it in their searches. However, since no investigation seems to have centered on this specific point, the data are inconclusive.

7. While the work of answering questions has received the lion's share of attention in the studies under consideration, it does not, seemingly, account for the major share of the reference librarian's time. Budington found that only 37 per cent of the reference librarians' time at The John Crerar Library went into "direct public service," the remainder going to such duties as book selection and administration, photocopying and clerical operations.[59] The Los Angeles Public Library survey of 1949 found that 41 per cent of the eleven public service departments' time was spent on direct service to the public.[60] In an analysis conducted at the Montana State University Library, some 47 per cent of reference man hours were available for desk duties, and these probably included supervision of the reference reading room.[61] It is perhaps no wonder that in a number of instances surveyors have specifically recommended that the time devoted to "behind-the-scenes" activities be reduced in favor of increasing the proportion of time devoted to direct service to the public.[62-64] How "public," indeed, are public service departments?

8. A much more important question is: how effective are they? One clue to the answer comes from the several studies that have reported the percentage of questions to which reference librarians claim to have found satisfactory solutions. This figure is consistently very high: 99.71 per cent at the Los Angeles Public Library; [65] in Cole's group of 13 libraries, 96 per cent, 91 per cent, and 88 per cent for public, college, and special libraries respectively; [66] in the Evansville Public Library, 96 to 97 per cent.[67]

The view from the other side of the desk is much the same. A number of studies have attempted to ascertain the opinion held by the reference clientele regarding the service received, and the results could hardly be bettered by paying for testimonials. At the University of Michigan Library, 54 per cent of the respondents rated the reference service as "excellent," 37 per cent as "good" and only 1 per cent as "poor." [68] At the Los Angeles Public Library, only a very minute frac-

tion found criticism with staff or its service.[69] Returns from a questionnaire to faculty members demonstrated ". . . a high regard for the effectiveness of the Reference Department" of the Columbia University Library.[70] The great majority (87.1 per cent) of students found the reference service "satisfactory" at the Indiana University Library.[71] More people "got what they wanted" from the reference department of the Enoch Pratt Free Library than they did from any other department.[72] Only 3 per cent of the New York Public Library patrons failed to receive the required information.[73] "As far as the service rendered by the librarian is concerned," reported Campbell and Metzner on the basis of their national survey of public libraries, "the reaction is almost entirely favorable, and almost two-thirds are strongly favorable." [74] Not an unwelcome record!

Taken together, the foregoing traits represent a kind of first sketch for the American reference portrait. Derived as they are from only a handful of observations, all of these features are still subject to change or erasure as further study brings closer knowledge. These characterizations might, in fact, be best considered as working hypotheses, and there is an ample field for further investigation simply in the work of substantiating these tentative conclusions.

A much larger field for quantitative study lies in the filling-in of additional features, and it is encouraging to report on some of the ventures currently in progress. Louis Shores, a veteran investigator in this field, is attempting to work out a statistical representation of reference work that would parallel the familiar and useful "service unit" concept used in the *A.L.A. Classification and Pay Plans for Libraries in Institutions of Higher Education.* His proposed "reference service unit" would, by means of weights assigned to the different reference activities, ". . . provide a common unit of measure for all reference services in every type of library" [75] and thereby facilitate comparison and evaluation.

The A.L.A. Reference Service Division's Committee on Standards has drafted a plan to evaluate reference services on a scale of "index numbers." [76-77] Under this plan, correlation would be sought between ranking of libraries in respect of a given measure or "indicator," such as the number of reference questions answered per man hour of reference time, and the ranking of the same libraries on an overall reference rating derived from the pooled judgment of experts. If certain "indicators" are found to obtain a high degree of correlation, they may then provide a convenient "index" of reference performance.

The proposals of Shores and of the R.S.D. Standards Committee would, if successful, provide a kind of shortcut to the evaluation of reference service. They may not work at all or be generally applicable, of course. In any case, they would be no substitute for the knowledge and understanding that derive from detailed case studies. Reference librarians will therefore welcome the study, now under way by A. Venable Lawson, of the reference service operation of a small group of comparable Southern university libraries.[78]

Such case studies would, in fact, seem to offer the most fruitful field for further investigation. Despite the existence of a voluminous literature on reference work, there are practically no studies offering full details in quantitative form on the reference operations of a library. Goldhor's brief "reference service analysis" of the Evansville, Indiana, Public Library might well prove a useful model for such studies, (20c) although they are even more urgently needed for university, school, and special libraries than they are for public libraries.

This is not to say that the search for convenient and reliable measures should not go on. Quite a number of these have, in fact, been adumbrated in the literature, and one wonders why they have not been taken up. Miles and Martin, for example, suggested the following: the ". . . number of persons instructed in the use of bibliographic aids per thousand patrons . . ." and ". . . reading courses started and completed per thousand patrons." [79] McDiarmid thought that detailed interviews with reference patrons regarding their use of the reference department would be useful.[80] Hutchins, pointing out that ". . . there has been too much groping in the dark because of impatience to gather statistics before deciding exactly what are the significant data," stressed the importance of clear statement of objectives or criteria as the necessary preliminary to the assessment of materials, personnel, and organization.[81] It may be noted in passing that only the Enoch Pratt Free Library seems to have published such a statement of reference policy.[82]

Still other potentially useful approaches come to mind. With respect, first of all, to the area of the *organization and performance of reference work:* reference librarians are as susceptible to rating as is any other professional group. Foreign language knowledge, advanced degrees in subject fields and in librarianship, and years of reference experience are all seemingly relevant to reference competence, and these qualifications could be expressed in quantitative form, preferably on a per capita basis. The number of reference man hours per capita of

population served, and more particularly of "desk" man hours, would be revealing. The use made by reference librarians of the card catalog, e.g., in what percentage of searches and for what kinds of information, needs amplification, as does the reference librarian's use of foreign language materials in answering questions. Much more data on the apportionment of reference librarians' time to their various duties would be welcome. And standardized tests of reference knowledge, comparable to those used for appointment or promotion in many fields, are by no means out of the question.

With respect to *reference collections:* evaluative procedures in this field seem relatively straightforward. If libraries of a similar size and type would be willing to make known their percentage holdings of titles in appropriate bibliographies, norms could easily be established and standards would not be far behind. Perhaps more important might be the ascertainment of the percentage of titles acquired from appropriate (to the type of institution) selected lists of current reference publications, such as the *New Reference Books at U.C.L.A.* in the case of large university libraries. The percentage of abstracting and indexing services subscribed for might be still another useful indicator.

With respect to the *value of the reference service or its impact:* the worth of the reference service to its users is the most intangible of all aspects, as it is also the most important. Nonetheless, an approach can be made. Reference librarians have, in large part, their reason for being in the time they save their patrons in information searches or in the fact that they can furnish information which the unaided patron could not find at all. It should therefore be relevant to ascertain how the patrons fare, in time taken and in the accuracy of the information obtained, on actual questions, as compared with reference librarians' performance on the same questions. If "real" patrons of various kinds cannot be persuaded to take such a test, library school students at the beginning of their courses could constitute at least one test group.

No particular claim can or need be made on behalf of the above suggestions for further investigation. They serve merely to represent the kind of continued effort toward more revealing description and assessment of reference service which is sorely wanted. The firmest single conclusion that can be made with respect to the present situation is that reference librarians, in failing to provide the means for accurate judgment on their place and contribution in library service, run the serious risk of having their work undervalued or ignored. It is surely no coincidence that the reference service claims so small a

space, so vague a statement, in the reports of administrators and surveyors; that it is also largely glossed over in the national plans and standards. A harsh fact of library life seems to be that if it cannot be counted, it does not count. With all the difficulties in its realization, the measurement and evaluation of reference service will call for much ado, but it *is* about something.

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